

American

FORESTS

MARCH 1953

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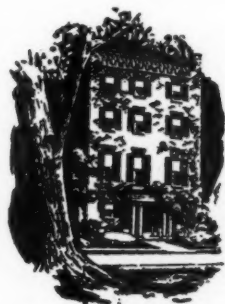
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The AFA

The American Forestry Association, publishers of *American Forests*, is a national organization—independent and non-political in character—for the advancement of intelligent management and use of forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is to create an enlightened public appreciation of these resources and the part they play in the social and economic life of the nation. Created in 1875, it is the oldest national forest conservation organization in America.

American FORESTS

PUBLISHED BY THE AMERICAN FORESTRY ASSOCIATION

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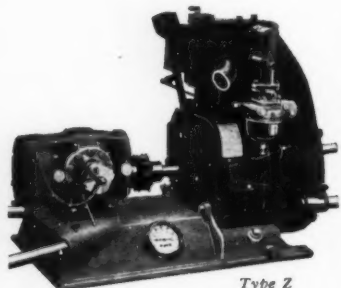
With Republican voices enunciating U. S. policy for the first time in two decades, the nation's capital has become more than ever the cynosure of all eyes and ears. The actions and words of the new administration's leaders are being weighed carefully for indications of the shape of things to come. One of the most significant, and hence most closely scrutinized, declarations yet made by the new administration was President Eisenhower's recent "State of the Union" address before a joint session of Congress. The President is pictured on our cover as he was delivering that historic speech. (Wide-world photo)



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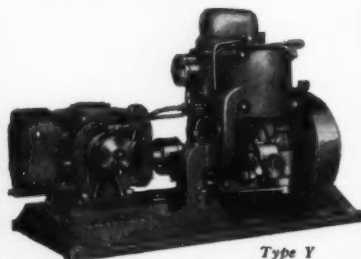
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That's what owners report about some of earliest models of Pacific Pumps ever built.



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WHEN THE FIRST Pacific Pump was introduced, it was a startling innovation. To produce an efficient pump light enough to carry by hand into rugged terrain but powerful enough to deliver an effective flow of water to combat forest blazes was news of national importance. Today, after nearly 30 years, many of the earliest Pacific Pumps are still in use and are still the favorite of experienced fire fighters . . . mute testimony to the stamina and dependability built into all Pacific Pumps . . . and to Pacific Pump's policy of supplying parts for even the earliest models.



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Years of engineering research and thousands of practical field tests made possible the improvements incorporated in the famous Type Y Pacific Pump . . . the most powerful unit ever built for its weight and size. The Type Y Pacific Pump quickly won the approval of experienced fire fighters and fire fighting authorities . . . and is still the standby of many of the nation's most practical forest fire fighters. Newer, post-war models of Pacific Pumps are now available . . . all even lighter, more compact and durable and more versatile for a variety of purposes.

Write for data on the complete line of Pacific Pumps, Pacolized hose and accessories.



LETTERS TO THE EDITOR

Snowed Under

EDITOR:

Received my copy of *AMERICAN FORESTS* today and found it interesting for several reasons. Firstly, of course, there was your interesting 'Trail Riders' Roundup which I enjoyed very much, and which I know will bring you many favorable comments.

Secondly, I had just finished reading that fascinating article on "How to Tame an Avalanche" replete with photos, one of which was of a slide at Alta, Utah, when I turned back to my newspaper desk and found the enclosed clipping from this afternoon's paper! I do trust Mr. Wiese was not there at the time. If so, when he thaws out his face is going to be rather scarlet!

Miss Teresa Mangin
Paterson, New Jersey

The Clipping

ALTA, UTAH (AP)—The only avalanche research station in the U.S. was without scientific equipment today—due to an avalanche.

Ranger Montgomery M. Atwater, of the U.S. Forest Service, who operates the research station at this resort in the mountains near Salt Lake City, said two snowslides on Flagstaff and Cardiff Mountains buried the installation's instrument tower and equipment under tons of snow, brush and debris.

Good Scouts

EDITOR:

We think you might be interested to know that our Girl Scouts earned 17,414 Tree Badges in 1952 and 10,455 Outdoor Safety Badges. We know that the excellent cooperation we have had with The American Forestry Association has helped to make these two subjects popular among our girls. We are very grateful.

Marie E. Gaudette
Nature Adviser
Program Development Division
Girl Scouts of the U. S. of America
New York City

Bouquet From Benson

EDITOR:

I would like to acknowledge receipt of your very fine publication, *AMERICAN FORESTS*, and to thank you for the very fine article about me published in the January issue. Would you be so kind as to send one copy of this issue to my home in Salt Lake City, and one to the *CHURCH NEWS*, Deseret News Publishing Company, Salt Lake City, Utah. I would greatly appreciate this favor.

It was a pleasure to meet with you yesterday, and I hope we shall have further opportunities of meeting together and discussing the problems of your fine organization.

Ezra Taft Benson
Secretary of Agriculture

Of Bugs and Men

EDITOR:

I heartily endorse the editorial which you published in February under the title "Men and Microscopes."

However, I understand that the Sault laboratory in Canada has a staff of 500 instead of 200 and that their yearly output of timber is 3.3 billion, whereas in the United States we have less than 200 people working in comparable positions and the timber output is 12 billion feet. You can also add the comparison that the burden of the Canadian effort is being borne by less than 16 million people, whereas in this country our feeble effort is distributed among 160 million people—or ten times more than they have in Canada.

If we were to have the same ratio of employed people on this work as against the annual output, we would have a staff in this country of somewhere between 1800 and 2000 people. Of course, there are not many trained scientists in the whole country who could cope with this situation.

The American Forestry Association did do a good job in relation to forest fires, but I think it should lead in this campaign of education relative to forest pest control. It will be a tougher job inasmuch as a fire is much more spectacular than a bug, but we never accomplish much unless we keep pounding away at it and I think this should be a continuing program.

A. G. Hall's article "The Silent Saboteurs" should also arouse the interest of many people.

D. C. Everest
Chairman of the Board
Marathon Corporation
Rothschild, Wisconsin

Norway Dissents

EDITOR:

In your November issue of *AMERICAN FORESTS* there is an article on forestry in Norway by the title of "Norway Plans By The Century," by Dennis Strong.

Since the end of the World War II, a great many foresters have come to Norway, both American and Canadian. Personally, I am very happy to have been accompanying—I may say—most of them around, and I am convinced of their great interest in what they have seen of Norwegian forests and forestry, and that they also have had some valuable experience from their stay in Norway, even though the conditions are different in America and here in this country. We have greatly appreciated that this has taken place with such success. We are also highly estimating your high-standing newspaper for giving your readers an article on Norwegian forestry, because this subject may be of interest to them.

However, we are sorry indeed that the writer of the article, Mr. Dennis Strong, has—in spite of his considerable number of facts—been unable to give a true and fair picture of Norway and of Norwegian forestry.

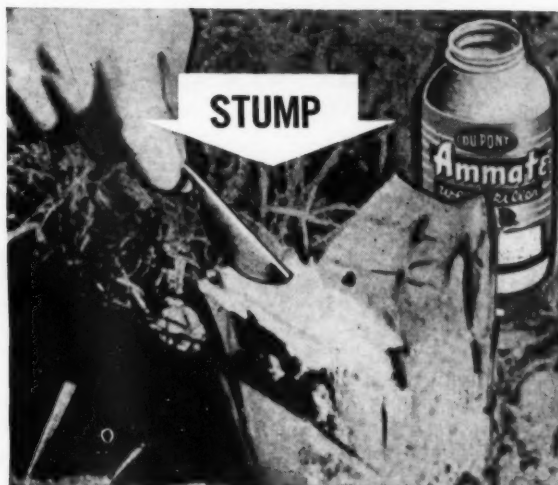
(Turn to page 51)

4 ways

TO KILL SCRUB TREES WITH DU PONT "AMMATE"



1 For large trees, hack overlapping cuts into the sapwood around the trunk. Pour in enough "Ammate" solution (4 lbs. to a gallon of water) to wet the cut surface all around the tree.



3 Cut small trees with a V-shaped stump. Put a tablespoonful of "Ammate" crystals in the V. You can also use "Ammate" on larger stumps to prevent sprouting.



2 On tough trees, chop notches every six inches near the ground. Put a tablespoonful of "Ammate" crystals in each notch. This deadens even blackjack oak with little resprouting.



4 On seedling trees or sprouts, spray the green leaves and stems when they are fully leafed out using "Ammate," $\frac{3}{4}$ lb. per gallon of water. Let trees or sprouts stand a year for best kill.

TIMBER GROWS FASTER when you kill Scrub Trees

You can increase the value of timber growth by killing scrub trees with low-cost "Ammate." Forest owners report it gives valuable pines more sunlight, more water and more room for root and top growth. "Ammate" kills blackjack oak, gum, sassafras, elm, willow, persimmon and other weed trees with little or no resprouting.

Ask for this free booklet: "Improvement of Pine Timber Stands with Du Pont Ammate." Write to Du Pont, Grasselli Chemicals Dept., 5031 Du Pont Bldg., Wilmington, Del. For supplies of Ammate ammonium sulfamate weed and brush killer, see the Du Pont distributor in your area.



BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

AFA Calls Fourth U. S. Forest Congress For October 29-31

ORGANIZATION plans for a fourth American Forest Congress to be held in Washington, D. C. (headquarters Statler Hotel) October 29, 30 and 31 have been announced by Don P. Johnston, president of The American Forestry Association. Called by the Board of Directors of the AFA, the Congress will be in the nature of a national "town meeting" conducted on democratic principles of open and free discussion.

The Congress will follow a second Higgins Lake Conference at Higgins Lake, Michigan on June 29, 30 and July 1 when members of the original Higgins Lake Committee of 1946 will confer with the Board of Directors of The American Forestry Association for the purpose of modernizing AFA's 1946 30-point Program for American Forestry to meet changing conditions. The proposed review and revision will be based on AFA's more recent Progress of Forestry Report and other up-to-date material on forestry progress in the nation.

Specifically, the main objectives of the fourth Forest Congress will be:

- 1) To bring the American public up-to-date regarding the current situation in respect to the proper management and protection of public and private forest resources in the United States.

- 2) To bring together representatives of government, industry, agriculture, labor and the public for joint consideration of the forest situation; and,

- 3) To consider such revisions of

AFA's Program for American Forestry as the Higgins Lake Committee may recommend.

Plans for the Forest Congress are being worked out according to the following pattern:

- 1) The Congress will be open to the public and the public will be invited. Specifically all important groups and organizations directly concerned in maintenance and development of forest resources and forest lands will be invited to name representatives to the Congress who may speak and submit statements for their respective groups or organizations.

- 2) At a later date the Board of Directors of The American Forestry Association will select a Forest Program Committee of not more than five members within the framework of the Higgins Lake Committee. This committee will meet following the Higgins Lake deliberations to prepare a report to be submitted to the Congress on such revisions as may be suggested by the Higgins Lake Committee. This report will be submitted to the Congress for consideration and discussion. During the Congress, time will be allotted for the submission and discussion of any other proposals that other groups may wish to present.

- 3) Adoption by The American Forestry Association of the program revisions suggested in whole or in part by the Forest Program Committee or by any other group will be subject to later revision by the Board of Directors of the AFA after having

had the benefit of the discussions, suggestions and criticisms flowing out of the Congress.

- 4) On the evening of October 30 an American Forest Congress banquet will be held at the Statler Hotel in Washington, D. C.

As respects The American Forestry Association, its Board of Directors, following the Forest Congress, will review and consider the discussions, suggestions and criticisms resulting from the meeting and will then adopt such revisions as are necessary to bring its Program for American Forestry up-to-date. It is hoped that other organizations may likewise decide to further define their positions in the light of findings made in the course of the Congress.

Participation in the Congress, the Association points out, does not commit any group or organization to formal adoption of any recommendations that may be made at the Congress or which may later be adopted by The American Forestry Association. Yet it is hoped that through open discussion of specific proposals a meeting of minds will be arrived at that will unify and speed action in bringing all forest lands in the nation into full productivity.

Three previous Forest Congresses called in course of the 77-year history of The American Forestry Association were all milestones in American conservation. The first Forest Congress in Cincinnati, Ohio in 1882, marked the beginning of a forceful forestry movement in the United States and in an era of reckless exploitation laid the foundation for a national forestry structure.

The second Forest Congress called in Washington, D. C. in 1905, once called "the most notable meeting of leaders of science and industry ever to attend a forestry meeting," resulted in the transfer of the forest reserves to the Department of Agriculture and the establishment of the Forest Service. The Congress was keynoted by President Theodore Roosevelt.

The third Forest Congress in Washington in 1946, perhaps the most significant of all, pointed up the path of forestry following the most costly war in history by a clear presentation based on a nationwide appraisal of the forest resources. It resulted in AFA's 30-point platform for American forestry—the most effective pattern for forestry progress laid down in the last decade.

Washington



Lookout

By ALBERT G. HALL

SO FAR AS NATURAL RESOURCES ARE CONCERNED THE PRESIDENT'S State of the Union Message will need clarification. The message outlines rather generally a broad program for the nation, but is lacking in specific answers. The specific answers will be found later in executive and legislative action. However, the fears of the conservationists who read the Republican Platform as a promise to toss resource programs into chaos, to dismember the national forests and parks, and to forget about the public interest, has been quieted somewhat by Mr. Eisenhower's statement: "We must more than match the substantial achievements in the half century since President Theodore Roosevelt awakened the nation to the problem of conservation."

A PARTNERSHIP OF THE "STATES AND LOCAL COMMUNITIES, private citizens and the federal government, all working together" is needed, says Mr. Eisenhower, for the "expansion throughout the nation of upstream storage; the sound use of public lands; the wise conservation of minerals; and the sustained yield of our forests." He states his firm belief, "The best natural resources program for America will not result from exclusive dependency on federal bureaucracy."

HOW SUCH A PARTNERSHIP IS TO BE EFFECTED AND WHO among the partners are to occupy senior and junior positions remains to be seen. However, the opportunity is made for states and local communities and private citizens to assume an importance they have not had for decades. That they are expected to rise to the opportunity is indicated in the President's statement: "Getting control of the budget requires that state and local governments and interested groups of citizens restrain themselves in their demands upon the Congress."

REORGANIZATION AUTHORITY SIMILAR TO THAT ENJOYED BY PRESIDENT Truman has been extended to President Eisenhower by the passage of H.R. 1979. This means that plans for reorganization of the executive branch of the government as will later be submitted by the President can be halted by the Congress only if a constitutional majority of the house or senate disapprove of them. The proposals of the Hoover Commission in regard to natural resources, therefore, take on new importance.

IT WILL BE RECALLED THAT THE COMMISSION RECOMMENDED that the functions of the Bureau of Land Management (excepting those respecting mining and minerals) be transferred from the Department of the Interior to the Department of Agriculture. On the other hand a task group of the Commission recommended the establishment of a Department of Natural Resources which would include all the federal land management agencies in a new department. The Commission's recommendation was embodied in part at least in a bill (S. 1149) on which hearings were held by the 82nd Congress.

RE-ESTABLISHMENT OF THE HOOVER COMMISSION, with its original personnel, is proposed in several bills before the Congress, but it is not anticipated that the new administration will await action on these bills. Studies are being completed in several departments which will provide the background for plans soon to be presented by the President.

(over)

SECRETARY EZRA TAFT BENSON HAS ALREADY EFFECTED A REORGANIZATION of the Department of Agriculture which in its main intent is similar to some portions of the old bill, S. 1149 mentioned above—at least so far as it is within the secretary's power to act without further legislation. The Department now has four major administrative services. The new Research, Extension and Land-use service includes the U.S. Forest Service, Soil Conservation Service, Extension Service, Agricultural Research Administration, Bureau of Agricultural Economics, Office of Foreign Agricultural Relations, and Agricultural Conservation Programs Branch.

THE HEADS OF ALL THESE GROUPS REPORT TO J. EARL COKE, assistant secretary. Under this reorganization, each of the old services is removed one step farther away from the Secretary of Agriculture. Net effect should be for closer coordination of the programs and services available to the states and individuals. This slight reorganization should have no effect upon the handling of the national forests, but it can result in further streamlining and strengthening of cooperative programs in reforestation and woodland management, and in the protection of all forests from fire, insects and diseases.

WILDLIFE AND RECREATION WITHIN THE NATIONAL FORESTS MAY RECEIVE a boost as a result of the reintroduction of bills to provide for earmarking of national forest receipts for these purposes. Representative Howard H. Baker of Tennessee proposes in H.R. 1972 to have ten percent of receipts set aside, up to a limit of \$5.5 million for wildlife and recreational development, while Representative Oren Harris of Arkansas proposes a straight ten percent earmarking without restriction. Neither bill provides for use of the funds for land acquisition.

A SIMILAR BILL, THE TACKETT BILL, WAS BLOCKED IN THE 82ND CONGRESS, and it is not likely that these new bills will fare any better, because, as the Board of Directors of The American Forestry Association pointed out last year—in connection with the same proposal—indirect appropriations of this kind are fiscally unsound. Wildlife and recreational development are legitimate functions of public land managers, but these activities should be able to command their worth in direct appropriations for integrated, multiple-use forestry. It is believed, however, that the interest generated in behalf of this "back-door" approach will focus attention on the problems of wildlife and recreation to the extent that the needs will be better evaluated and provision made for them.

SPURIOUS MINING ENTRIES ON NATIONAL FORESTS WILL BE HALTED and many entries now of doubtful character will eventually be eliminated if a bill, S. 783, introduced by Senator Clinton P. Anderson of New Mexico, is enacted. Senator Anderson, a former Secretary of Agriculture, is personally familiar with the so-called abuses of the mining laws. His bill would retain within the national forests the title to the surface of mining claims, and would permit mining claimants to utilize only such surface rights as are clearly necessary to their mining operations.

IN PRESENTING HIS BILL, SENATOR ANDERSON POINTED OUT that in the national forests of the 12 western states some 84 thousand unpatented mining claims involving over two million acres of land are now in existence. Of these, only two percent are producing minerals in commercial quantities, only 40 percent are "considered valid under the mining laws," yet they are tying up over eight billion feet of timber valued at more than \$103 million.

NATIONAL PARKS AND MONUMENTS INDIVIDUALLY HAVE BEEN the subject of controversies over the building of dams which would inundate portions of them—examples are Glacier National Park and Dinosaur Monument. Representative LeRoy Johnson of California has proposed in his bill, H.R. 1038, that the matter be settled once and for all by prohibiting the construction of any dam which would adversely effect any national park or monument. Such a law would shift the tide of battle—instead of the proponents of parks having to fight numerous individual battles, the proponents of dams would have the problem of trying to break down a prohibitory fence.

EDITORIAL

"You Cannot Freeze Progress Unless You Have Already Achieved Perfection"

EZRA TAFT BENSON

Secretary of Agriculture

RESOLUTION PASSED BY AFA'S BOARD ON JANUARY 30, 1953

The American Forestry Association reaffirms its long-standing support of the national forests as set forth in its national Program for American Forestry adopted in 1946 after an extensive study. The essential integrity of these federal properties must be preserved as part of our basic national policy. The Association will vigorously oppose any attempt to abolish or dismember the national forests that would endanger their effectiveness in serving the public interest.

As set forth in its Program for American Forestry, the Association believes that the national forests would be strengthened by a realistic and impartial review of their boundaries, state-by-state, in the light of progress in forest management and other pertinent considerations including watershed protection, wildlife and recreational use.

This review should provide factual information upon which to project the pattern of desirable national, state and private forest land ownership in the foreseeable future. When approved by the Secretary of Agriculture, the state review should guide the future course of the Department in respect to national forest additions or eliminations.

In approving the resolution quoted above, The American Forestry Association reaffirms a position taken in 1946 when it adopted its Program for American Forestry. The resolution is not a new proposal. In 1946, the Association went on record as favoring state-by-state studies of the desirable relationship between federal, state and private forest ownership. It is still of the opinion that such studies would materially aid in projecting the future pattern of forest ownership. It urges that such studies be made. The aim of AFA now, as in 1946, is to strengthen forestry on both public and private lands.

The Association finds itself in disagreement with that school of thought which urges that the status quo on federal lands be frozen and that the existing pattern be religiously maintained regardless of changing facts or conditions. Such concepts are at odds with the whole spirit of forestry progress in a dynamic free society. Groups favoring such proposals actually risk doing forestry a disservice. They risk jeopardizing the future of forestry on the very public lands they profess to be protecting.

Forestry is not a static thing. Nor can it be considered as a thing apart. It is part and parcel of the very economic fabric of the nation. A changing thing itself, it is closely tied in with the

constantly changing needs of the American public as a whole. Our policy on public lands should be adjusted to current needs and conditions, and not frozen in terms of what has happened in the past.

For 77 years the first allegiance of The American Forestry Association has been to good forestry regardless of where it was being practiced or by whom. In that period, the sole yardstick for measuring all problems has been "is it good for forestry?" When the course was clear and the answer "yes," the Association moved ahead unswervingly, often in uncharted waters and well in advance of public opinion, in attaining its objectives. It pioneered in the establishment of the national forests. It has fought many good fights in their defense. It will fight many more.

But it should be remembered that the key aim in these historic campaigns in which the AFA figured so prominently was the good of forestry itself, that the instruments and agencies set up at given times to accomplish what was needed were of secondary importance and not necessarily fixed and irrevocable in the forestry firmament. Rather they were tools set up by the American public to do a job that needed to be done to strengthen forestry in given periods, and they are subject to change just as forestry itself is subject to change.

Today, forestry is poised on what may well prove to be its greatest era of accomplishment. It is moving forward into dynamic new concepts of planned, maximum use of all forest lands in a period when both the economic and political climate are decidedly favorable.

That is why forestry should plan well in laying a solid base for future accomplishment. It should keep alert to changing trends, new conditions—keeping the best interests of forestry itself and the American public constantly in the forefront. With this in mind, the AFA has called a second Higgins Lake Conference in mid-summer to modernize its program for American forestry. A fourth American Forest Congress has been called for this fall to consider such improvements in its program as may be necessary in the light of changing conditions.

It was the recent privilege of Association staff members to present its resolution to the new Secretary of Agriculture, Ezra Taft Benson. In perusing the resolution and discussing many aspects of forestry today, the new secretary commented, "You cannot freeze progress unless you have already achieved perfection." As a star to which the growing forestry movement might well hitch its wagon, the secretary's comment could scarcely be improved upon.



Abuses Under the Mining Laws

Profiteering With Impunity

IN the preceding five articles of this series I have reported scores of cases where selfish opportunists, posing as legitimate miners, have squeezed through the various loopholes in our federal mining laws to reap personal profit and convenience at the public's expense. This is done simply by staking a mining claim on a piece of publicly-owned property. Whether any mining is done on the claim is incidental most of the time. This type of operator usually isn't interested in producing minerals; he's after control of the land. Not very ethical, but legal nevertheless under our 82-year-old mining code.

Two changes in our antiquated laws would prevent these so-called "miners" from depriving the public of use of and profit from its own lands, and would in no way interfere with legitimate mining. Both of these changes have already been drawn up in the form of bills by various members of Congress, but surprisingly the nation's lawmakers have yet to take positive action to translate these provisions into law.

The needed changes are simple. One would take pumice (among other materials) out of the class of minerals and into the classification of coal and petroleum, both of which are now being obtained under a lease arrangement in large sections of public domain. The other change would divorce the surface rights from the mineral rights in any mining claim. If such laws were in effect, it would soon show the difference between the slick operators and the legitimate miners.

Even some legitimate miners are acquiring undeserved odious reputations through their guilt by associa-

tion with these phony miners. In fact, many legitimate miners aren't even aware that their self-styled colleagues are practicing widespread chicanery.

Nevertheless, it is amply evident that there are literally thousands of claimants whose sole purpose in filing a mining claim is to obtain, if possible, some profit from the surface values of the land. Legitimate miners stoop to no such reprehensible actions.

One representative of Pacific Coast mining group recently remarked to me that if the Forest Service rangers weren't so lazy, they could stop all the abuses of the mining laws. "They have the laws," this person said. "Why don't they use them?"

The plain, bold fact is that the federal mining laws are so constituted that they leave the door wide open to every sort of "under the table" deal. The practices being carried on today were never intended by the set of tenants drawn up 82 years ago.

As for a Forest ranger being legally equipped to stop questionable land manipulations—he simply can't do it. He hasn't got the tools. It's like giving a man a broken pick and shovel and demanding that he dig a tunnel through solid rock. The task is impossible of accomplishment.

Let us assume that an individual well acquainted with the loopholes in the federal mining laws decides

that he would like to get hold of a 160-acre tract of fine standing timber. The timber is worth \$1000 an acre as it stands. With an outlay of approximately \$1000 over a five-year period, this individual may be in a position to make \$150,000—not a bad profit.

Observe how the federal mining laws work in such a case:

Our "investor," as an individual, can file a placer claim covering 20 acres. In order to do this, he is supposed to make a "discovery of minerals." This requirement is often very easy to fulfill, for the slight mineralization necessary to qualify for "discovery" is present in vast regions of public lands throughout the west.

But our investor wants 160 acres—not a mere 20. He therefore forms an "association" with seven other persons, usually relatives and friends, which permits him to file a "group" claim on the entire 160 acres.

Next comes the "assessment" proviso of the federal mining laws, which requires the claimant to do \$100 worth of improvement work each year on each claim for five years before a patent to the land can be applied for. Our investor gets around this financial outlay by doing work on one claim only, maintaining that assessment work applies to the entire 160 acres.

During all this time the Forest Service can do little to invalidate the

(Turn to page 30)

As this series is concluded, American Forests joins John Q. Public in saying "how about it?"

DO YOU WANT TO GIVE AWAY YOUR NATIONAL FORESTS

THE OPPONENT OF JACK B. BRIDGES
ON MONEY, SO-
DATE FOR CON-
SERVATION

THE NEW YORK TIMES, SUNDAY, AUGUST 1, 1952
CONSERVATION: THE PARTY PLATFORMS
State Controller Bridges
Of Policy and Detailed
Plan for Action

Public Land Sales Plan

By A. D. Brownfield and Sam C. Kyles

There is a statement that should command the close consideration of all users of public lands, by A. D. Brownfield of New Haven, a past president of the American National Live Stock Association and a member of the National Advisory Board of the Grazing Service, president and founding editor of the National Livestock

and other state lands of a figure which may ultimately get most of them on the tax rolls of the various states. If a way could be found to place these millions of acres of grazing land upon the tax rolls of the states wherein they are located, and have tax controlling measures with suitable authority prop-

may be subsequently owned and taxed by the counties and cities in which they lie. Many proposals are being made for co-operative state action. For that reason we outline one and urge more than casual thought be given to it. Land suitable for cutting more than livestock grazing has only one value, and that is as timber land.

WASHINGTON POST January 10, 1953

Fear And Public Lands

From several corners of the West come reports that various private interests are opposing the new Administration to adopt a more "liberal" policy on public lands. By "liberal" is meant a policy that, if it were adopted, would not permit the disposition of large portions of the public domain.

Cattlemen, Sheepmen Join Forces In Fight Against Forest Service

Already Exerting Great Influence in Management of Grazing Lands Under Taylor Act, They Now Seek Control of \$1,000,000 More U.S. Acres

Comments are being made in the West that the Taylor Act, which gave the Forest Service control of the public domain, is being used to the detriment of the livestock industry.

Public Domain in Danger Again

Private Interests, Governed by Their Own Propaganda, Want for Return of Good Old Days in Section 1000

There is a statement that should command the close consideration of all users of public lands, by A. D. Brownfield of New Haven, a past president of the American National Live Stock Association and a member of the National Advisory Board of the Grazing Service, president and founding editor of the National Livestock

Threat to Natural Resources

If Gen. Eisenhower Really Admires Teddy Roosevelt He Should Adopt T.R.'s Attitude Toward Spoils

During the presidential campaign, Gen. Eisenhower was charged by some of his supporters to be a "conservative" in his attitude toward the public domain.

The Whole Story

By ROBERT W. SAWYER

"Not supported by facts," says a western editor of arguments that extensive federal land ownership is bringing only burdens—no benefits—to the states

FOR some months federal land ownership has been under attack by the Chamber of Commerce of the United States. The attack began in the August 15, 1952 issue of the Chamber's publication, WASHINGTON REPORT, where there appeared an outline map of the United States with a dark area in each state representing the percentage of its acreage in federal ownership. The total of the shaded portions was said to be 24 percent of 455,146,726 acres out of a national total of 1,905,361,920. There was a caption, "Federal Land Empire Deprives States of Taxes on 24% of U. S."

The opening paragraphs of the accompanying article read:

"Federal bureaus now own 24 percent of all the land in the United States."

"Federal bureaus pay no state taxes. Private landowners do. This means that you pay not only your share of state taxes but you must pay more to make up for what the bureaus don't pay."

One who read the rest of the article was left with the impression that this extensive federal ownership brings only burdens—no benefits—to the states and their citizens. The land hungry U. S. bureaus, he was told, continually seek to extend their holdings and as they do so the states are "deprived" of more and more tax income.

Then Laurence F. Lee, president

AMERICAN FORESTS

WASHINGTON Report

Land Empire Deprives of Taxes on 24% of U.S.

Salt Lake Tribune

Monday Morning, August 17, 1953

Land Empire Deprives of Taxes on 24% of U.S.

The congressional act of 1921, providing for the withdrawal of public lands into federal ownership and to pay taxes on them, was passed without a dissenting vote.

Priority

This is a legal and a moral issue. The federal government has a duty to protect the public interest and to ensure that the land is used for the benefit of the people.

US Land Buying Seen as Part of Cartel

The federal government is buying land at a rate that is unprecedented in the history of the country. This is seen as a part of a cartel to control the land.

CIO Unit Says Profiteers Plan Raid On Resources

A warning that private interests have organized a coalition to obtain political support for a program to control the land and its resources.

The Good Earth Is the Food Storehouse...

The federal government is buying land at a rate that is unprecedented in the history of the country. This is seen as a part of a cartel to control the land.

Conservationists Carry on Fight For Federal Control of Ranges

Conservationists are fighting to protect the public lands from the interests of the cattle and sheep industry. They are carrying on a fight for federal control of the ranges.

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Too Much Public Land?
 Chairman A. L. Miller of the House Subcommittee
 From the PROVIDENCE JOURNAL, June 24, 1953

THE DENVER POST
 DENVER, COLO., MONDAY MORNING, FEBRUARY 2, 1954
STOCKMEN CLAIM THEY MUST OWN U. S. GRAZING LANDS TO SURVIVE
 Growers Assert Freedom From Rangeland Whims Is Vital
 The Easy Chair
 Two-Can Demand

Cheaper Grazing Is Sought By Ranchers on U.S. Lands
 Department of the Interior
 From the SALT LAKE TRIBUNE, Sunday Morning, July 12, 1953

The Good Earth Is the Food Storehouse...
 Conservationists Carry on Fight For Federal Control of Ranges
 Criticism of Those 'Idealists' Who Seek to Protect Public Lands Against Efforts of Stockmen to Acquire Vast Rights
 From the PROVIDENCE JOURNAL, June 27, 1953

Conservationists Carry on Fight For Federal Control of Ranges
 Criticism of Those 'Idealists' Who Seek to Protect Public Lands Against Efforts of Stockmen to Acquire Vast Rights
 From the PROVIDENCE JOURNAL, June 27, 1953

of the U. S. Chamber, speaking in November before the National Lumber Manufacturers Association, elaborated. From Mr. Lee's words one would suppose the American citizen's freedom to buy and sell land was coming to an end and that there is a dangerous government conspiracy to extend a land acquisition program. He conceals but thinly an attack on federal forest ownership—the national forests. He raises the same cry as does the Chamber article about tax losses resulting from government ownership.

Doubtless the figures are all correct and it is indeed the fact that federal bureaus pay no state taxes. President Lee may defend the narrow meaning of his words, the half truths they tell. They are only half truths, however, and if he speaks in a just cause it is unfortunate that he fails to tell the whole story.

Let all the facts be put on the record and of these the first and the most important as an answer to the Chamber attack is that there are millions of acres in that 24 percent that no one would ever want or be willing to own or pay taxes on. There is no tax loss on these lands. Another is that thousands, if not millions, of acres of lands that were once federal went into the hands of citizens and, after being raped of their timber, went back to the "federal empire" on the solicitation not of a federal bureau but on that of their private owners. Many other

thousands of acres left government ownership, went first on the tax roll and then tax delinquent. Now they are owned by the counties where they are a headache for the assessors and a sorrow to the conservationists. They ought to be returned to the federal domain.

A final fact is that though taxes are not paid on any of these federal lands numerous financial benefits in lieu of taxes and otherwise do come to the states where they lie.

It is in the 11 western states that the greatest part of the "Federal land empire" shown on that Chamber map is found. The total is 402,036,696 acres out of the 455,146,726 and it is to these 402 million western acres that the attention of the reader is directed. While they include land in various categories, Indian reservations, military installations, national parks, national monuments, reservoir floors, irrigation canals and so on by far the largest acreages are those in the national forest and in the (once) so-called unreserved public domain.

Mention has been made of the lands that have been turned back to the government and of those that went into private ownership and then tax delinquent. The latter are lands that were homesteaded. The category just named, the unreserved public domain, is made up of the acres left over after the western homesteaders had had their pick. It is nontax paying because no one

ever wanted to own it. No, these lands are not on any tax roll but their existence does bring to the states the special financial benefits already referred to. These are not mentioned by the U. S. Chamber. They are benefits in highway construction funds and here is the story.

Since 1921 there have been federal appropriations for state highways. The general rule is for the states and the federal government to share costs on a 50-50 basis. In the public land states, however, on a federal aid highway contract the rule is varied in recognition of the federal acreage and in Oregon, for example, the state's share is 37½ per cent to the federal 62½ per cent.

In 1930 another special benefit came to the public land states with the appropriation of funds under the Oddie-Colton act for highway building across the public lands and Indian reservations. In all \$31,000,000 has been authorized or appropriated for these public land roads.

Of less importance but yet a return because of the existence of the public domain are the payments made to many counties under the provisions of the Taylor Grazing act.

So much for the public domain income. Of greater importance are the returns to counties and states and property owners in general by reason of the existence of the national forest. One of these—but

only one—is vaguely hinted by Mr. Lee.

To begin with and contrary to the impression left by one of Mr. Lee's sentences schools are beneficiaries of the national forest ownership. Federal law requires the payment to each state of 25 percent of the annual gross income of each national forest. The money must be used for the benefit of roads and schools. For the five year fiscal period 1948 through 1952, Oregon counties have received from this source \$15,196,476.38. That 25 percent payment is in lieu of taxes. In addition the states benefit road wise from the existence of the national forests for there are regular federal appropriations for forest highways. From fiscal 1948 to 1952 inclusive these appropriations for Oregon's forest highways totaled \$11,570,847.62. Nor is this all for on forest roads (not highways) in that same period nearly \$5½ million of federal funds was spent in the state. Annually over \$1,000,000 is spent on maintenance.

The financial benefits just described accrue to all the states containing public domain or national forests. In Oregon, in addition, there are two special situations in the field of forestry and government landownership. These are the Oregon and California revested lands and the Coos Bay Wagon Road lands. Presumably their acreages are in the Oregon total and it is therefore proper to point out that they bring substantial annual returns to the counties in which they lie. The figures are—acres, 2,610,867 and payments to 18 Oregon

counties in the five fiscal years 1948 through 1952, \$15,010,458.96. These funds, like most of the national forests 25 percent fund, are all derived from timber sales.

In the light of all these facts and figures it is difficult to find justification for the charge that federal landownership deprives the states of taxes. The figures are from only one state but conditions in it, so far as federal lands are concerned, are not unlike those of the other public land states. Obviously, the public domain lands cannot be expected to go into a private ownership, tax-paying status. At the same time the fact that these lands are what they are does bring a financial return to the states as their proprietor, the United States, recognizes and assumes the obligations of ownership.

There is another fact to be added to the list already given. This relates to the national forests. As to them let it not be assumed that they consist entirely of timber-bearing acres. Again using Oregon figures one finds in the state 14,813,175 acres of national forest but 5,267,175 of these acres are classified as noncommercial. All acres, nevertheless, bring a return in lieu of taxes to the counties in which they lie and they bring to the state annually millions of dollars that have no recognition on the part of the U. S. Chamber. These conditions as to the national forests in Oregon are duplicated in greater or less degree in each of the western states.

As one of the facts essential to the telling of the whole story reference has been made to the forest lands that have gone into federal owner-

ship. Mr. Lee would make it appear that the federal government had been active in acquiring such acreage. "The timberland owner," he says, "is invited to exchange his cut-over lands . . . for trees of the federal government." It is doubted here that the exchanges that have added to the acreage of the national forests came about in any such fashion.

For the full record it would be necessary, of course, to go to each national forest. In Oregon the facts contradict Mr. Lee. There have been, for instance, added by exchange to the Deschutes national forest in central Oregon 383,369 acres. For all but 8095 acres of that figure the exchange was initiated by the private owners. The small balance is the total of exchanges sought by the Forest Service for the protection of timbered strips along the highways—an undertaking originally promoted by numerous groups of citizens rather than by any federal authority.

In the past five years in all the national forests in Oregon there have been additions totalling 114,435 acres. Exchanges made up 108,126 acres and all were initiated by the owners.

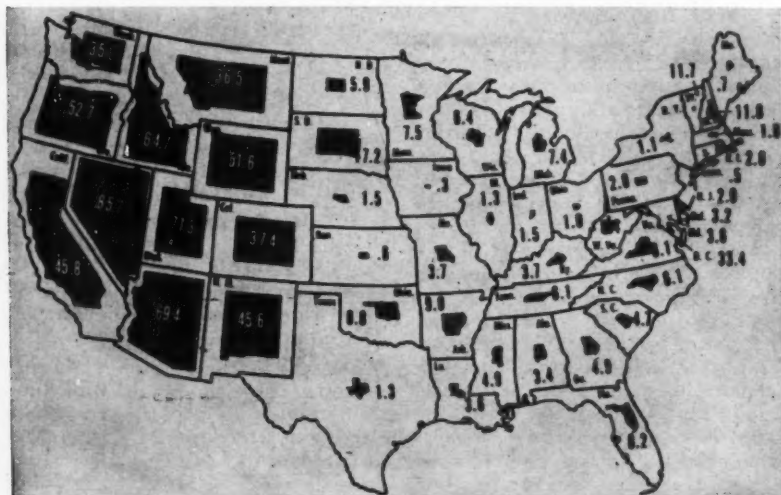
The fact is that in all too many cases of private timberland ownership the lands have been clear cut and the owner, no longer willing to pay taxes, has wrung from his acres the last remaining dollar of value by turning them over for national forest stumpage. That procedure, and not eagerness on the part of bureaucrats to extend the federal domain, has enlarged the acreage of the national forests.

In addition to such national forest acreage additions in the west there should be remembered purchases under the Weeks act in many states. The record is not available but here again it is a fair guess that in most cases, if not all, the transaction was initiated by the owner and not by a federal officer.

One sees in the Chamber attack and the Lee address the beginning of a movement to force the United States to divest itself of some of its lands, more especially the timberlands of the national forests. Here is the one natural resource in sole government control that private operators would like to reach. Mineral lands may be filed on and title secured by designated processes. Grazing land may be leased though

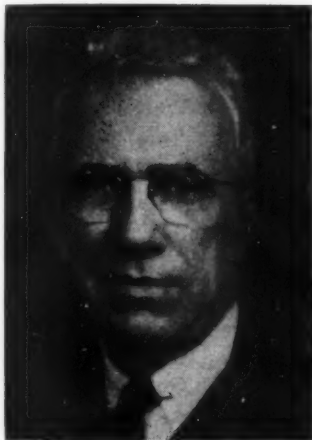
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Map published by the United States Chamber of Commerce showing how much land federal government owns in each of 48 states



Key Conservationists in Congress

SEN. GEORGE D. AIKEN



ONE of the key men in forestry in the new Congress — Senator George D. Aiken (Rep., Vermont) — listened with approval on February 2 when President Eisenhower, in his "State of the Union" address, urged the formation of an effective working partnership of the states, local communities,

private citizens and the federal government for the proper management of the nation's natural resources.

Three days previously, Senator Aiken, the new chairman of the powerful Senate Committee on Agriculture and Forestry, had predicted that emphasis in the new administration would be on "more encouragement" to woodland owners rather than "more controls." Such encouragement, in the form of more effective education and research, should be directed especially toward thousands of woodland-owning farmers, he thinks.

A successful farmer, nurseryman and timber grower himself, Senator Aiken took issue with a statement that the new administration might attempt to drastically reduce present monies used for forestry, commenting, "That's not the approach—the attitude is for greater emphasis on getting full value for the dollar spent in all government work."

In this connection, Senator Aiken feels the emphasis in coming months will be on reviews pointing to more efficient administration rather than new laws. He does not anticipate a heavy influx of new legislation to be considered by his committee for the present. There will be administrative changes, he thinks, after careful study and review of existing problems.

Senator Aiken said the new Congress is "very friendly to forestry." As is his habit, he frequently views problems in terms of conditions in his own state which he visits once a month for several days even when Congress is in session. Of late he has been concerned regarding possible future ravages of the gypsy moth which has been active in the Green Mountain State. In this connection he said that in his opinion both the public and private agencies will find Congress ready to help on all necessary steps to curb tree-killing insect pests and diseases.

Referring to past work of the U. S. Forest Service in Vermont and to hoped-for future cooperation in forestry (Turn to page 44)

REP. CLIFFORD R. HOPE



A FULL-DRESS review of the nation's natural resources, such as the one scheduled for October 29-31 when The American Forestry Association has called a fourth American forestry congress, has the enthusiastic endorsement of Rep. Clifford R. Hope (R., Kansas), new chairman of the powerful House

Agriculture Committee and a conservation leader in Congress for the last 26 years.

In an interview with AMERICAN FORESTS editors the veteran Kansas lawmaker said he thought such a study and planning conference was advisable not only because of political changes in federal leadership but also because it would provide conservation groups with an excellent opportunity to ascertain the facts upon which can be built a complete, unified program for submission to Congress and the leaders of the new administration. He noted that the late-autumn date of the meeting would allow Congressmen dealing with conservation legislation as well as the conservation interests themselves ample time to define their positions in the light of latest available information.

"I think it would be wise for all parties interested in the conservations of our renewable natural resources to participate in a general stock taking that would embrace all, not just a few, of the aspects of this field," said the Congressman. He added that for a review of this type to be successful it must be well-organized and thorough.

Pointing out that it is still "a little too early to tell" whether there will be any major changes in the government's approach to conservation legislation, Rep. Hope said that the "Eisenhower spokesmen" have not yet clearly spelled out to Congress the President's stand on many conservation issues. When Mr. Eisenhower's wishes are defined, the House Committee Chairman anticipates that watershed and flood control projects will be high on the discussion list.

In the meantime, Rep. Hope said his Committee is adopting a "wait and see" attitude. He was hopeful, however, that the new administration would have its conservation views completely defined "either late this year or next year." He said he could see no "drastic changes" in prospect for legislation relating to forestry.

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New Hampshire Taxes the Ax

By LAWRENCE W. RATHBUN

How the timber yield tax law came into being, and how it now functions, is explained by a forester who played a prominent role in securing its passage



Mr. Mendenhall

New Hampshire Forester Elected To Term in State Legislature

FORESTERS also help make the laws—including the timber yield tax law—in New Hampshire. The Granite State's newest woodsman-legislator is Howard Mendenhall, assistant forester for the Society for the Protection of New Hampshire Forests, recently elected to fill the unexpired term of David Hadley, Dumbarton, who died Jan. 20. Prior to becoming assistant to Lawrence W. Rathbun, author of the story appearing on these pages and twice a member of the state legislature himself, Mendenhall was the forester for the Brandywine Valley Association.

THOUGH famous for her forests since the days of the broad-arrow, which designated mast trees reserved for His Majesty's Navy, New Hampshire has never given much attention to their regeneration, to say nothing of their cultivation. Her attitude for the past 300 years has been to let nature take its course. The results have not been wholly disastrous but neither have they been in accordance with the

Yankee spirit of thrift, that urge to make the most of what we have.

In 1860 nearly 50 percent of New Hampshire's total area was cleared land. In the past 90 years much of that area has reverted to forest until now only 16 percent is not forested. In the southern part of the state especially this reversion has gone through the white pine cycle so well portrayed by the famous forest mod-

els on display at the Harvard Forest in Petersham, Massachusetts.

The silviculture of the region is not simple since much of New Hampshire lies in the transitional zone where existing types are frequently of a temporary character. The pure white pine stands which captured the old fields do not reproduce themselves under the usual methods of cutting. Even careful management cannot protect them against invading hardwoods on the better sites. The competition of species in the vigorous reproduction which almost invariably follows clear cutting, has inclined us to do nothing until enough merchantable material accumulates for the next cut.

Unhappily, the less desirable species, and remnants of previous cuttings, occupy more and more acreage. The merchantable yield per acre of softwoods has been dropping. We have been fortunate in the discovery of chemical methods to use hardwoods for papermaking but the value of pulpwood is far less than that of either softwood or hardwood





Trees that might have been cut may now grow tax-free under new law

lumber. The silvicultural problems are difficult enough, but in addition, there has been a man-made obstacle which has deterred those who might want to practice forestry, i.e., grow more valuable timber and explore the forest crop theory.

Local government in New Hampshire is by towns, which raise nearly all their revenue from the real estate tax. Growing wood and timber has been a recognized real estate feature. As such it has been subject to scrutiny by the assessors if their conscience or pressure for revenue prompted them to assess it "at full and true value in money." Their Yankee horse sense forced them to inconsistency and they overlooked, undervalued and generally gave the timber a break. If a woodlot changed hands, however, the next assessment was apt to be pretty close to the purchase price. This meant that at least one full tax could be collected, which in turn justified the new owner in skinning the lot clean. The 35 thousand forest owners could see the sword of Damocles hanging over their heads and acted accordingly.

Corporations, nonresidents and summer people with better than average ability to pay, contributed rather generously to local expenses. The trees grew and taxes were paid but no thought or money was expended on management to increase the declining yield.

All the State's encouragement—excellent fire control, cheap nursery stock, blister-rust eradication, farm foresters' services, made little or no impression on forest owners' indifference. Cutting standards continued far below the average for the rest of New England. Natural growth persisted but at a low rate, perhaps 100 board feet per acre per year. Quality fell off with quantity, both of real concern to industry. The widely advertised environment for outdoor recreation suffered along with soil and water resources.

By 1940 the situation, appreciated by many thoughtful observers, became widely apparent. The application of the annual property tax to forests was not good sense. The relatively silent struggle between forest owners and assessors served but to

whittle away at the forest and leave it to grow untended, to yield its meagre natural increase with the least expense to the owner.

In 1941 Laurence F. Whittemore, formerly a member of the New Hampshire Tax Commission and a delegate to the Constitutional Convention, persuaded that body to propose an amendment to "provide for special assessments, rates and taxes on growing wood and timber." The necessary two-thirds majority of the electorate voted to ratify the amendment. That in itself in no way changed the existing statutes or custom.

Sherman Adams, serving his second term in the general court in 1943, introduced a bill to require listing of the values assessed on growing timber separately from those on land. Its passage met no great opposition, perhaps a tribute to his leadership and ability. A special session of the legislature, however, called early in 1944 to permit absentee voting under the war conditions, nearly upset the appellation. The assessors had discovered the inconvenience of the new separate assessment act. The House of 400 members included many who disliked not only the extra work but also the state's intrusion into local affairs. While sitting as a committee of the whole the House voted in record time to repeal the separate assessment law. The Senate, however, stood firm and rejected the measure.

It was never again threatened and in the years following served to encourage more careful assessment. The total valuation in timber actually declined 15 percent in five years. In each succeeding biennial session measures to implement the constitutional amendment came before the House. Opposition, based on fear that any change would upset local control and revenue, invariably killed the proposals.

In 1949 Sherman Adams returned again to the State House, this time as governor. A bill was prepared, studied, amended and discussed by everybody who wanted to take a hand. As a result a law, rather complicated in form though simple in purpose, survived the legislative battle, saved on one occasion by Speaker Richard F. Upton, who cast his deciding vote in its favor. The measure removed all growing wood and timber from the annual property tax and provided instead a tax at the time of severance amounting to 10 percent of the value. Governor

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Man's Great Search

The quest for an abundant fiber from which to make paper has been one almost as long as man's search for truth, and has been almost equally blind at times

PERHAPS it should be called man's longest *successful* search. For of course man's great search is always for God and truth, and goes on endlessly—simply because men cannot all find them at once, at the same moment of history.

But the search for an abundant fiber—from which to make paper—has been one almost as long as the search for truth, and in seeking such fibers man was almost equally blind at times. He had to search, and find, and lose the secret, then discover it again. In our vast perspective of ancient and medieval history, where-in centuries pass in a few pages, it was a breathless "chase," more thrilling than a detective classic. Several years ago a writer told the story of civilization in terms of bread; of grain, really, from which bread is made.

One day a writer will tell the story of the world and its search for freedom in terms of the tiny wood fibers for which man searched so long. A writer of such fortitude, finding this minor essay in his research, will doubtless discard it as the merest of outlines. But at least here we can take prophetic peeks at some of his chapter headings, possibly decades before the first page of his great book is written.

One of the most wildly popular lectures ever given in this country was one called "Acres of Diamonds." The title has come into the language to stay, after both author and lecture are forgotten. You recall that "the acres of diamonds," however, were

By NARD JONES

in our own prosaic backyards. It has always been so; the lecture simply decorated an eternal and comforting truth.

The secret of papermaking, not simply as a manufactory, nor as a service to publishers and printers, but rather as an endless source of truth, hence freedom and liberty, was in man's backyard all the time. And in his front yard, too. It was in the growing trees, in the forests.

Yet one need not even leave a favorite chair to have a look at these fibers—at the object of the long search. Tear almost any ordinary scrap of paper in two and hold up to the light one of the ragged edges. Those tiny spears, sticking up against the background light, are the wood fibers of the living tree. Because the piece of paper for your experiment is probably white, the little wood fibers are bleached of natural color. But otherwise they have not changed; they have simply been segregated, by the wood-pulping process, from other contents of the tree.

Now just for fun, when your eyes are adjusted to the tiny spears, pick out a couple of fibers that are side by side. It's entirely possible that one of those fibers is a couple of hundred years old, while the one right next to it may be only a few weeks in age. Yet here they are, side by side in the same sheet of paper. This of course is somewhat by accident; and so may be the fact that they are in a sheet of paper at all. Either or both of those fibers might have wound up as a tiny part of a chair leg, or a milk container, or a sheet of plywood, or a page in a book—or, for that matter, in the

very magazine page you are now reading.

They might, also, have arrived in your home as infinitesimal parts of a rayon dress, or in the transparent wrapping of a candy bar. In those instances, however, you would not recognize them as fibers; they would have been completely changed by the chemical processes which transform wood fibers into rayon yarn or transparent sheeting, or hundred of other products in dozens of other fields. But of course when men first hunted for such fibers they thought only of one thing, as important then as it is today—they sought a source of economical and abundant fibers from which to make *paper*.

Now—if one of your tiny fibers in that ragged edge of paper—if one is two centuries old and the fiber next to it very much younger, does this mean they came from two different trees? *Not necessarily*.

Because no tree is actually *all* two or three hundred years of age. Only its innermost fibers may be that ancient. Its outermost wood fibers were being created in the sunlight of yesterday, and new fiber layers are being created in the sunlight of today. Like many old folks we all know, a tree—one might say—grows progressively younger from its heart outward.

I have witnessed a very practical wood scientist grow starry-eyed in describing what really goes on in a forest to create the forests themselves with all their bounty and, as well, the cellulose fibers which in their turn build each living tree or unit of the forest. In a moment I want to share that privilege with you.

But while you and I may have thought of the forests as quiet places,

West Virginia Pulp and Paper Co. photo
It is in the growing trees, in the forests, that lies the long-sought answer

naturalists as well as scientists have been aware of the drama in that quiet. We recall how Muir liked to ride a pine top in the wildest of storms and thrilled to the struggle of tree against a gale. Tomlinson in a flash of perception stood in awe of the ceaseless struggle for life in the forest. He suddenly saw it as a stopped "still" from an animated movie. While Tomlinson's literary figure was by no means so topical and inelegant as that, he saw the lush vines twining heavily about a giant's trunk as the giant surged toward the life-giving sunlight. He recognized a life-and-death struggle as dynamic as that between two beasts of the forests. Stewart Holbrook, logger turned historian and literary light of the Pacific Northwest, once remarked he would like to "edit" a newspaper of happenings in a forest day and night. He did not refer to human trespassers or four-footed animals alone.

In somewhat the same vein I heard a scientist describe the forest process in terms of the great "carbon cycle" of which all of us are immortal parts. Even as you and I, the trees return to the earth and the air and the waters, to reappear in other forms. "All we really know about it," this wood chemist said, "is in the Bible. And Omar Khayam tried to put it simply, too. In time we will know much more about how the sun furnishes energy to move the chemical transformation inside a tree, making the wood cellulose fibers, the lignin and other things. But we'll never know too much, I dare say." He smiled. "If ever we found the absolute secret of fibers we would, of course, have the very secret of life.

I'm doubtful we shall stumble upon that in any laboratory."

Your wood chemist works with fibers only to try to make the world a better place in which to live, to further the economic welfare which we now realize is necessary to the free world. The economy which communism would destroy as prelude to annihilation of Christianity and liberty. The vital inner secret of that world the wood scientist leaves to other minds. But he is aware of it; he is dedicated in the sense that he realizes he works in materials borrowed from nature.

Said the technical research director of a large pulp and paper company to me: "Technically and from a manufacturing standpoint the making of wood pulp is quite complex. Yet compared with what has already happened in the creation of those wood fibers—which pulping merely separates from the noncellulose materials—how really simple our job is! Why, all the vast resources of hydroelectric and steam power on this continent could never make power enough, make energy enough, to create those wood fibers our forests are producing each day. Only the sun has that kind of energy!"

Accurately, if surprisingly, he thought of a forest as a vast chemical "factory"—a veritable chemical conversion plant powered by the sun. If you and I think of chemical factories as functional concrete blocks with windows, surrounded by odors and uninteresting lawns, we may now revise the picture. Nature was making fibers chemically long, long before man even began to dream of a synthetic fiber.

"Wood cellulose fibers will always

be more economical," said the scientist. "It will always take a lot of power and energy to tie all those atoms and molecules together to make a synthesized fiber of equal properties."

He did not mean, of course, that animal or vegetable fibers, or the newer man-made fibers, do not have their specific roles. He did mean, above all, that paper and paper products must be inexpensive, within the reach of everybody.

In order for this to be, there must be fibers, in great abundance. This is no longer a problem—but once upon a time, and for centuries, it was a very grave problem indeed. And that is the story of the long search. . . .

It was a search which began four or five thousand years before Christ, went on for nearly two thousand years after He was born. Slowly it covered half the world, and finally all of it—so that, at the successful end, the site of the original discovery and the site of the latest development in fiber processing were almost joined. The Pacific lay between.

For it was in China in 105 A.D. that a Chinese scholar, Tsai Lun, grew unhappy with papyrus as a writing surface. He tried many things, and finally the inner bark of the mulberry tree. He "pulped" its fibers out of the mass by hand, with a stone.

All histories of paper begin at this moment. There are excellent and scholarly ones; but this writer believes that even a first-rate history of papermaking drops half its meaning unless there is *emphasis* on the world-wide search for the fiber.

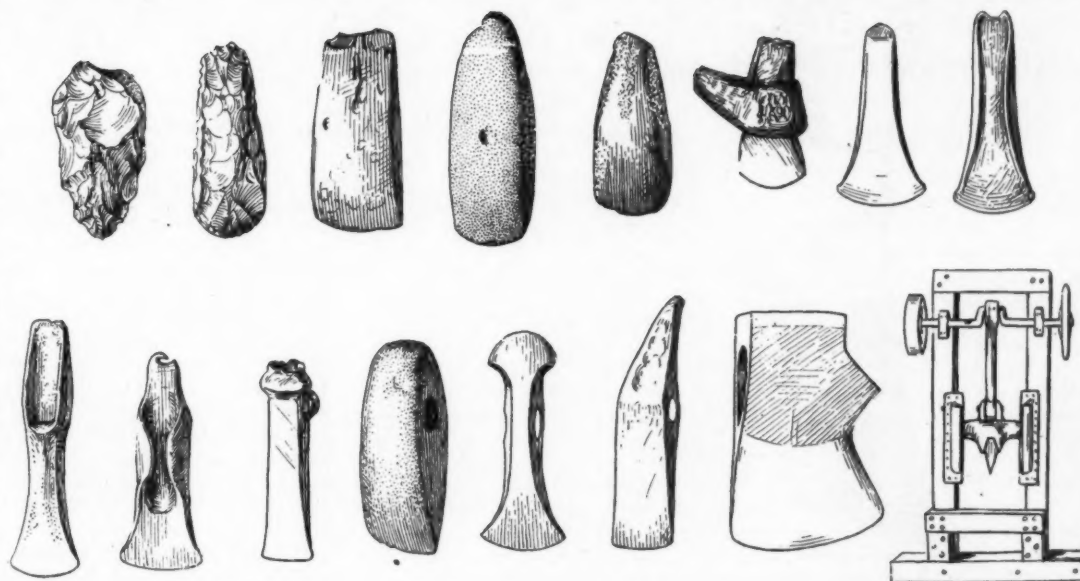
In 3600 B.C. at least, papyrus was used for recording and communication by the Egyptians and Babylonians. They were using plant fibers, if not tree fibers, but it was not pulping. The fibers were not segregated from the aquatic plant stems. The whole stems were interwoven, pressed, and dried. The ancients did not yet have the secret of wood cellulose fibers.

And the Chinese, characteristically, kept their secret. They used not only mulberry bark, but fibers from pulped cotton and linen as well—centuries ahead of the "civilized" world.

The next development in the search came out of the darkness of torture rather than the light of knowledge. Arabs of Samarkand fell upon Chinese prisoners and wrested

(Turn to page 40)





Evolution of European ax beginning with the Stone Age

HISTORY OF FOREST TOOLS

THE AX AND ADZ

ABOUT the first tool primitive man needed was a cutting blade with which he could turn the forests all around him into useful objects. Even before handles were invented, men of the Stone Age used pieces of sharp, jagged rock held in the hand, as a sort of ax. Chopping stones to which a backing was fastened so that they could be held in the palm of the hand, have been found.

The first big improvement was the addition of a handle. This gave better leverage and allowed heavier strokes. But fastening the stone axhead to a stick wasn't easy. Sometimes it was lashed to the handle with sinews or strips of fiber. Again, holes were drilled in the stone so that the handle could be fitted in tightly as in our steel axes, although

By CREIGHTON PEET

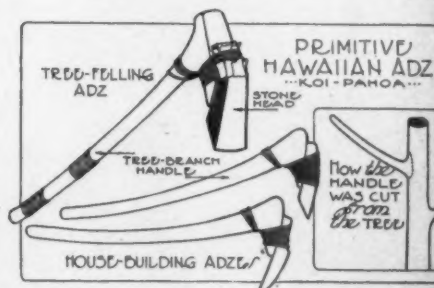
making such a hole with a primitive drill must have taken days of work.

Obviously not all kinds of stone made equally good cutting blades, and thousands of years ago men discovered that flint could be chipped or "flaked" to produce a reasonably straight edge which would be sharp, and last awhile. Our American Indians used flint to make arrowheads, and so did the ancient Egyptians thousands of years ago. In fact flint was used for weapons and tools wherever it was found.

But flint was not common everywhere, and when a good deposit was uncovered "ax factories" grew up. In many places anthropologists have found deep shafts, like mines, from

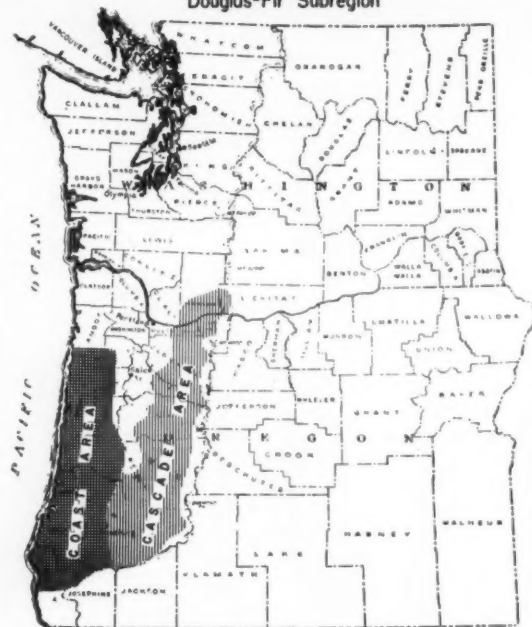
which it is believed, men of the Stone Age dug flint to make axes and adzes. Around the openings to these shafts are big piles of flint chips. Here, many generations of men probably worked making tools.

Whether made of flint or some other stone, axheads were always (Turn to page 50)





AREAS MAPPED: 1952 BLOWDOWN-BARKBEETLE SURVEY

Douglas-Fir Subregion



LEGEND

-  Area mapped 100 percent for blowdown and beetle-killed timber (flight lines 1 mile apart)
-  Area mapped 100 percent for beetle-killed timber, 12 1/2 percent for blowdown (flight lines 2 miles apart)

Pacific N. W. Forest & Range Experiment Station
Portland, Oregon
October 10, 1952

Nature

A HURRY-UP forest salvage job of such magnitude and scope as to make even the most figure-happy forester disbelieve his own astronomical estimates of damage, today challenges the resources and ingenuity of the forest agencies of western Oregon and Washington.

More than 10 billion feet of prime timber scattered over 10 million acres of the Douglasfir belt has been killed in a weird double-pronged forest catastrophe. Another five billion feet probably will be killed before 1955.

It is possibly the worst forest disaster to hit continental United States since the white man came, and dwarfs even the famed Tillamook Burn in total damage.

This staggering loss stems from two natural forest enemies.

Daniel Olin, USFS air operation officer in vast job of mapping blowdown, points out the area to be flown



Blowdown in a young 40-year stand, where salvage value is low, beetle potential high

AMERICAN FORESTS

...on the Rampage •

Blowdowns and beetles have killed more than 10 billion board feet of timber in the prime Douglasfir section of Oregon and Washington

By ARTHUR W. PRIAULX

It started three years ago. For three summers, rainfall had been light along the Oregon and Washington coast. Forest fires did extensive damage. There was considerable blowdown of timber by heavy winds. Then the Douglasfir beetle (*Dendroctonus pseudotsugae*), most destructive of all insects to this species, always present in endemic state, suddenly went berserk. It found ideal breeding conditions, an abundance of its favorite food in new-killed timber in the burns and wind-blown areas. It spread and bred in fantastic numbers. These hungry beetles quickly fanned out into adjoining green timber. In three years they had taken their toll of a billion feet of green timber.

This was the picture when nature dealt its second blow, the coup de grâce.

On December 4, 1951, a hurricane swept in off the Pacific Ocean and in eight short hours left horrible havoc where the day before stood a vast virgin wilderness. Eighty to 100-mile an hour winds knocked down mile-long swaths of green trees along ridges and mountain tops like ripe grain falling before a reaper. Along the coast range and inland 100 miles, half the length of the Cascade Mountains in Oregon, the damage was fantastic.

Hardly a section escaped some damage from the California border northward to Linn and Lincoln counties. Single trees, clumps of trees and little eddies of giant firs, spruce and hemlocks fell like jack-

straws before the unbelievable force of the hurricane winds. Orderly green forests became a shambles.

When the hurricane struck, the beetles had already infested a billion feet of fire-killed and green timber. Damage was measured along the Oregon coast and into southwest Washington. Then suddenly nine billion feet of green timber was blown down in that one weird and awful day.

What became a black nightmare to man was a bonanza to the Douglasfir beetle. Here was more food. Manna for hungry hordes of beetles. An ideal breeding place. The table was set.

Worst catastrophe of all was the location of the windblown timber. Much of it was in roadless areas of Douglas, Coos, Lane and Linn coun-

From the air, parts of 10 million acres of ravaged forest took like a jackstraw tangle



ties, in areas not planned for harvesting, for generations. In many, many damaged townships, hardly a road exists today.

Before 1953 draws to a close, the beetles will have infested virtually all of the windblown timber, entomologists state. Choice, attractive cambium layer becomes unpalatable the second year after the live tree has been fire-killed or blown down. So, by the spring of 1954, the vast legions of new beetles, nurtured at the unprecedented free-luncheon tables of millions of killed trees, will attack nearby stands of green Douglasfir trees.

R. L. Furniss, in charge of the Portland forest insect laboratory, estimates the beetles can kill at least five billion feet of green fir timber this year and next. This is a minimum potential damage and destruction. If there is more blowdown and more fire-kill, the beetles will maintain their epidemic strength. Granted ideal conditions, the beetles will subside to endemic state again, when they have nothing but green trees to feed upon. In endemic state, they select only an occasional tree in the forest. A red-top fir is a signal the beetles have been active.

A contingent disaster will lurk for many years in the wake of this vast blowdown and in the millions of beetle-killed trees in the ever-present risk of forest fires. The standing green trees will lose their branches and stand as dry snags, ripe for lightning fires, and a potential torch when forest fires get started.

That is the ugly picture which faces private and public forest agencies in the Douglasfir belt. What can be done to salvage this great wealth? What can be done to check the spread of the beetle all over the fir region and on into Canada?

To find the answer, a subcommittee of the Northwest Forest Pest Action Committee, concerned only with the beetle, got underway immediately in the spring of 1952. Members had plenty of background for they had sparked the successful aerial spraying of millions of acres in Oregon and Washington forests in the past three years in an effort to control another pesky insect, the spruce budworm.

Headed by W. D. Hagenstein, chief forester, Industrial Forestry Association, as chairman of the experienced subcommittee, the task force went into action. It numbered five men, besides Hagenstein. Furniss; E. F. Heacox, Weyerhaeuser's chief forester; A. J. Jaenicke, U. S. Forest Service; C. W. Richen, Crown Zellerbach's chief forester; and T. M. Tyrrell, Bureau of Land Management's regional forester.

Their first job was to alert all landowners, to ask them to survey their own properties to determine extent of damage, and to inform them of methods of control. They held meetings last spring in Coos Bay, Eugene, Medford and Roseburg. These were forest centers where the beetle damage was most severe—the hot spots. Scores of for-

esters and landowners attended each of the meetings.

The action committee urged immediate salvage operations. They pointed out there is no satisfactory way to control the beetle by spraying, for the period of emergence from the host tree is for a short time only while he seeks a new home, and his migration period varies widely.

The ensuing ten months saw the finest example of cooperation ever witnessed here in the Pacific northwest between the representatives of private, state and federal agencies.

It soon was obvious that speed was to be the keynote of this cooperative venture. The committee and all landowners needed immediate information as to the extent of the hurricane damage and beetle kill. Ground surveying was out of the question, for the area was too large. Aerial viewing and estimating was the only answer.

Arthur W. Greeley, of the Pacific Northwest Forest and Range Experiment Station, took charge of a giant mapping project. In a few weeks he was ready. He had obtained four airplanes, powerful four-place Cessnas. He trained a picked crew of foresters as flying mappers. Each of the high-winged monoplanes with the single engine carried a crew of four men, a pilot and three observers. The observer in the front seat next to the pilot got a front view, and mapped for beetle kill.

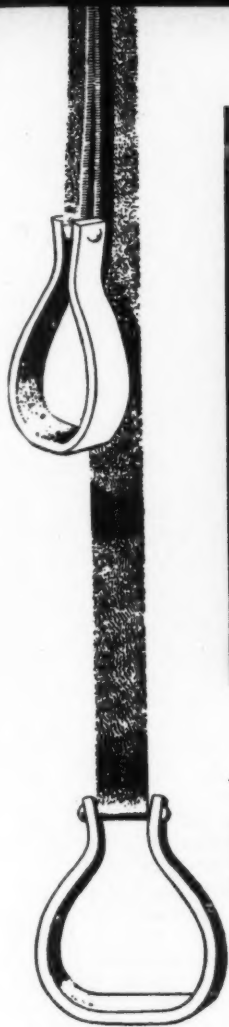
(Turn to page 36)



Note mosaic pattern etched by the beetle as death knell is dealt to another Douglasfir

Bark has already fallen off some beetle-killed logs, probably first blown down, then attacked by the bugs





20 YEARS ON THE TRAIL

Outdoors lovers have a pick of 17 Trail Riders of the Wilderness expeditions this year—20th anniversary of the AFA-sponsored trips

WINDING their way through high mountain meadows, fragrant in the sun with the warm scents of pines and spruces, resins and wildflowers, and flanked by some of the boldest mountain scenery in North America, cavalcades of adventurous Trail Riders will again penetrate the wild and infrequently visited back country of some of our National Forests this summer. Other venturesome Trail Riders will take to canoes and paddle their way in the great water wilderness country spanning the United States-Canadian border in Minnesota and Ontario. In all, 17 separate expeditions through unspoiled wilderness areas are on the schedule for Trail Riders of the Wilderness this summer of 1953.

Celebrating the 20th Anniversary of trail riding in the great wilderness of the Flathead and Sun Rivers in the high remote country of the Flathead. Lolo and Lewis and Clark National

BY DOROTHY DIXON
Director of Trail Riders

Forests, two groups of Trail Riders will assemble in Missoula, Montana on July 5 and July 16, respectively, for 12-day expeditions. This vast roadless kingdom, the scene of the initial Trail Rider expedition in 1933, remains unchanged, since few persons other than Trail Riders ever get into it. This glaciated mountain country of sparkling lakes, deep canyons and flowered valleys straddles the Northern Rockies and includes such highlights as the 15-mile long "Chinese Wall," a great granite ledge marking the top of the continent in this area.

The popularity of this trip over the years is a tribute both to its organization and the country through which the riders travel. Joe Murphy, of Ovando, Montana, who took the first band of riders into this domain

of pure mountain beauty, is as enthusiastic today about showing "his" wilderness to the Trail Riders as he was 20 years ago. He will be ready with horses and camping equipment to give the 1953 riders an unforgettable experience, just as he has been doing through the years.

In the Sawtooth Wilderness of serrated mountains, lakes and majestic pines in the Sawtooth and Boise National Forests of Idaho, two more parties will check in at Sun Valley for expeditions scheduled July 21 to 31 and August 4 to 14. Claude W. Gillespie, who has been outfitting the Idaho expeditions since 1937, will lead the Trail Riders through this spectacular mountain country with its rugged peaks and crags and alpine lakes for a truly superb and inspiring trip.

The pioneer expedition last year in the High Uintas Wilderness of the Ashley National Forest, Utah, was
(Turn to page 46)

The Hungry Steppes



By BRIAN J. HAIMES

The history of this Russian desert is a story of soul-destroying labor to defeat the sands and wrench a living from the unyielding earth

IN WAR or in peace, under Tsar or Soviet, there is one battle in Russia which never stops. This is the massive struggle between man and the steppes—a bitter fight in which the dice are heavily loaded against the efforts of men.

For century after century the rolling sands of the Kara Kum Desert, in Russia's southern province of Uzbekistan, have lain barren and useless. Once there were cities here, thriving on the trade of the camel caravans which trekked endless miles to and from the rich markets of India, China and Persia. But the people knew nothing of the value of shrubs and trees in anchoring the precious topsoils and they saw their houses, their bazaars, their mosques, gradually swallowed by the marching sands of the hungry steppe. Now all that remains of them is an occasional domed mosque lying ruined in the shifting dunes, or a few piled bricks, remnant of an ancient wall, uncovered by the scorching winds

that blow across this withered land.

No matter how tough the living, though, there are always a few hardy characters who refuse to leave and who strive grimly to wrench a living out of the unyielding earth. In Uzbekistan the last-ditchers are cotton growers who occupy the two major oases of the south, Bokhara (where the rugs come from) and Karakul, watered by the Zerashan River. But for many years now they have fought a losing battle, each year giving up another few yards of their plantations to the creeping sands.

Despite the immense asset of the river, the history of these oases is a story of soul-destroying labor to defeat the advance of the sands. An ancient local proverb says truly, "Where the water ends, there the land ends."

Not only the laboriously tilled cotton lands have disappeared under the steady piling of the dunes. When the Transcaspian Railway was built 70 years ago, it too was soon smoth-

ered. In an effort to keep the sand off the roadbed, railroad gangs built wooden shields and put up hundreds of miles of reed matting alongside the tracks but without success. Tsarist officials tried sowing desert plants, imported from the Sahara, to bind the sand. Their Soviet successors laid a clay bed along the railroad, sprayed miles of it with a mixture of oil and salt and put down coarse gravel. They might as well have saved their labor. The creeping grains of sand and grit went right on building up in drifts behind the puny barriers.

The situation on the plantations was even worse than that and in 1925 the sandhills were advancing across them at the rate of 50 yards a year. Most people know now that contour plowing and the sowing of trees and grasses helps to hold the topsoil in eroded areas and to assist the rehabilitation of barren lands. But what do you do when there hasn't been any topsoil for centuries? How do you get anything to grow in bare sand? How do you grow enough to make any impression on the vastness of the desert?

Obviously the answer is to grow a green belt of forest and establish a new topsoil—somewhere, anywhere—if the sand can be held off long enough for the topsoil to form. And that's no easy matter even in a land of peasants and cheap labor.

The tipoff came some 60 years ago when Forester Vladimir Obruchev tackled the troublesome situation. Deserts, he noticed, are seldom absolutely barren although to the unpracticed eye they may seem so, particularly when that eye is accustomed to the lush natural beauty of forest lands. But, in nearly all deserts there are at least a few stunted plants and Obruchev staked his throw on his pet theory that the way to beat the sand was to take specimens of the hardy scrub plants which fought to live in the unpromising desert, develop them and use their hardihood to advantage. This sounds like a simple answer but Obruchev soon found that it wasn't as simple as it looked. For one thing, not all deserts are alike. They may look alike to the layman's eye, but the relative amounts of the various salts in the ground are apt to differ widely, as is the amount of precipitation available for the roots, and both of these factors are affected by the amount of scrub on the surface. Thus, there is not one answer but many answers to the problem of desert afforestation.

The Russians started work in four

AMERICAN FORESTS

trial areas—the Ferghana Valley, the Katta Kum Desert near Termez (hottest spot in the Soviet Union), along the middle and lower reaches of the Amu Darya, and along the fringes of the Kara Kum and Kyzyl Kum Deserts. They soon found that the solution which worked in one part of the desert didn't work in another and a separate treatment had to be worked out for each area.

The first success came in the fertile Ferghana Valley, a wide strip of farmland with a dead heart of alkali desert. Here Obruchev was able to anchor the sands by planting a live barrier of the fast growing tamarisk. This succeeded chiefly because the water was fairly near the surface. The sand piled round the thick shrubs as they grew, but they grew faster than the sandhills and prevented the topsoil from drifting. Where the tamarisk was not suitable, groves of oleasters with their silver leaves and edible fruits could sometimes be grown. In some places where the water was not too deep even poplars were possible. Whether the water was fresh or saline didn't seem to matter just so long as it was water.

Ferghana, however, was a special case and the real desert proved a tougher problem. To solve it, Ana-

toli Leontyev, present director of the Central Asian Forestry Research Institute, set up the Shafrikan Experimental Afforestation Centre at Bokhara in 1934. Here, in partnership with forestry experts who had fought the sand for years, he set about his work. Its results are best seen in the grounds of the Centre itself. The main buildings are set in a grove of slender, supple sand acacias whose delicate drooping branches, trimmed with tiny silver leaves, tremble softly with every breeze. The Centre has large vegetable gardens and an orchard where nothing grew 20 years ago. Outside it stand tall hedges of Russian thistle (a plant which thrives on alkali soil), over which tower dense stands of black saksaul whose green branches hang in clusters and garlands over shrubs of curly kandym. The kandym—a type of *Calligonum*—blossoms in bouquets whose fluffy, tufted seeds resemble blossoms of mimosa multiplied ten times. Their pretty pastel colors include lemon yellow, cream, rose and carmine and their pleasant subtle fragrance is certainly not wasted on this desert air.

All this has been brought about despite the fact that the ground water here is 60 feet below the surface. How is it done? The main an-

swer is that no grasses are sown or allowed to filter into the areas reserved for trees. All the bushes and trees grow directly in the loose sand and the roots thus get the full benefit of any precipitation which occurs via rain or snow. There's little enough moisture in all conscience in these parts of the world and a good deal of what the trees do get comes from the moisture which is formed in the spaces between the sand grains when the vapor in the hot air condenses at night.

The Shafrikan theory is that under natural conditions grasses are the predominant plant population and their ramified root systems take up 90 percent of whatever moisture, rain or snow is available. The remaining ten percent can sustain only scattered dwarf shrubs. By planting only trees and shrubs and keeping out the rapacious grasses, the foresters can raise dense stands of trees which form a permanent and reliable barrier against shifting sands. As a result the green belt along the northern edges of the Bokhara and Karakul oases is now 110 kilometres long and half, to one and a half, kilometres wide. The sand drift across the plantations has been stopped.

(Turn to page 47)





USFS photo

Mt. Baker National Forest in Washington



USFS photo

Mariposa grove of big trees in California



Photo by Roy Atkeson

Timberline sunrise on Mt. Hood in Oregon

USFS photo
Rio Grande National Forest in Colorado
AMERICAN FORESTS



National Parks Service photo

Lassen National Forest in California



USFS photo

Fantastic snow creatures in Oregon's Cascades

Winter

COMES TO THE FOREST



THE many and varied beauties of winter give us pause to reflect that this, after all, is more than just the season of sniffles. Who can fail to find delight in an intricate frost design on the window, the trackless fields after a night's storm — or the matchless sight of forests attired in their mantles of snow?



Fusiform Rust

By BERCH W. HENRY

IN the south one frequently hears foresters, woodsmen and nurserymen complain about the fusiform damage. Owners of southern pine woodlands will do well to inform themselves about this disease which frequently causes serious damage to southern pine woods, especially to the reproduction and the younger trees. It seems to have caused little economic loss in the virgin forests but it is a serious obstacle to the development of second-growth stands in some localities. It has caused heavy losses in many nurseries. *Cronartium fusiforme* is the scientific name of the fusiform rust fungus.

Distribution: This disease occurs throughout the southeastern part of the United States, from Maryland to Texas and Florida. It is most prevalent in the southern part of the loblolly-shortleaf-hardwoods forest type from South Carolina to Texas.

Hosts: Loblolly and slash pines (*Pinus taeda* and *P. caribaea*) are highly susceptible to fusiform rust, longleaf pine (*P. palustris*) is moderately susceptible, and shortleaf pine (*P. echinata*) is immune for all practical purposes.

The disease is not transmitted directly from pine to pine but must pass through an alternate stage on the leaves of oak trees. Sixteen oak species, including both black and white oaks, are known to be susceptible. The black oaks are most susceptible and among them the most important are water oak (*Quercus nigra*), willow oak (*Q. phellos*), laurel oak (*Q. laurifolia*), and bluejack oak (*Q. cinerea*).

Symptoms: Perhaps the most prominent indication of the presence of the disease are fusiform (spindle shaped) swellings on the stems and branches. The name "fusiform rust" is derived from the

shape of these swellings. In the early spring an orange-colored spore dust is produced in the blisters on the surface of the swellings. Another symptom frequently noted is a witches-broom type of growth of the branches. Cankers on the trunk of the tree is another effect of the disease. These cankers often eventually kill the older trees or so weaken them that they are broken by the wind or ice. Pines of all ages, from the youngest seedlings to mature trees, are affected by the fusiform rust. Loblolly pine, although very susceptible, is killed by the disease less often than the slash pine.

The first symptoms of the alternate stage are orange-colored dots on the underside of young oak leaves as they are maturing in the spring. As the season advances these spots enlarge and produce dark-colored hairlike projections. These projections may also develop independent-

ly of the spots. The damage to the oak leaves is usually negligible.

In the course of the infection cycle this fungus produces five kinds of spores: two on pine and three on oak leaves. On the pine host it produces the pycniospores, which are not concerned in disease spread, and the aeciospores. The latter are the orange-colored dust that appears in spring on the swellings on the pines. They are scattered by the wind and infect the oak leaves. They cannot reinfest the pine. The spore stages on oak leaves consist of the uredospores, which are the orange-colored spots, the teliospores, which are the hairlike projections and the basidiospores or sporidia. The uredospores spread the infection on the oak leaves but cannot infect the pines. The teliospores produce the sporidia which are carried by the wind to infect the pines. This infection cycle

(Turn to page 45)

Cankers covered with aeciospores pustules



Loblolly pine with fusiform rust cankers

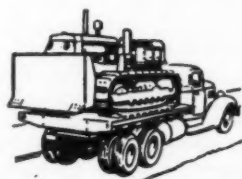


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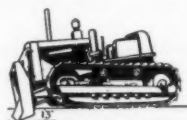


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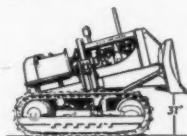
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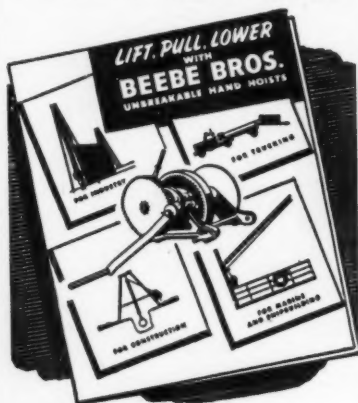
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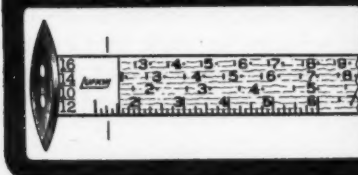
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Abuses Under the Mining Laws

(From page 9)

mining claims. It is palpably evident that the man is doing no mining whatever, and never intends to. The timber on the 160 acres is "ripe" and ready for harvest, but still the Forest Service does nothing.

This inaction stems from a very good reason. If the Forest Service did succeed in invalidating the claims, the "miner" could turn right around and re-file on the area the very next day, and the Forest Service would be right back where it started. It costs \$500 to investigate a single 20-acre claim and bring the matter to court. Often such procedures take months, and equally as often, the results amount to zero.

A so-called miner seeking surface values doesn't try to go to patent if he realizes that the Forest Service stands a pretty good chance of disproving his claim. He simply hangs on to his claim and awaits developments. This course of action also stems from a very good reason.

It is extremely difficult, often impossible, to oust a man from a mining claim. The claimant can state almost anything he wants to in his claim. It is up to the Forest Service to prove the statements false. But when a patent is sought—which amounts to outright ownership—then the burden of proof falls on the patentee.

That being the case, the mine claimant simply holds off. By so doing, he keeps control of the land and the Forest Service can't touch any of the surface values on it. In our composite case, the mine claimant has control over \$160,000 worth of valuable timber. He figures that the Forest Service will in the end pay off rather than go through the futile expense of contesting his claims.

The Service opposes such deals, but the mine claimant, nothing daunted, will attempt to get a lumber company to pay off—in reality a form of blackmail. If the Service gets wind of such dickering, any contemplated timber sale is not countenanced.

Instances such as I have outlined cost the public real money. Timber is a crop that must be harvested when it is ripe. If it is left to stand, mature trees fall down and start to rot. Beetles get in their work. The longer an over-ripe tree is left on the ground, the less it is worth.

What is so galling in situations like this is that mining claims, as phony as a three dollar bill, are preventing the public from getting any return on a legitimate business transaction. The Forest Service is in the business of raising and selling timber for the profit of the people of America.

"Standoffs" such as these are not uncommon in the areas of valuable timber in Oregon. Mine claimants simply will not release the timber values—in other words, won't let the trees be cut on their claims.

They are playing for large stakes. They simply hang on to their claims (it costs very little to do so), in the hope that someday, somehow, they'll make a substantial profit. In the meantime, the public is deprived of its own timber. The fact that the "miner" can't touch it either is small consolation.

Upon occasion another public agency gets caught in the mining claim web. Recently the Oregon Highway Department decided to relocate part of The Dalles-California highway through the Deschutes National Forest. The Forest Service readily conceded the right-of-way, subject to any mining claims that might be filed thereon.

It developed in a hurry that there were plenty of mining claims to contend with. Rather than go to all the trouble of fighting the various claims in court, the Oregon Highway Department is paying ten dollars per acre (taxpayers' money) for rights-of-way through the claims.

I drove over that very piece of road last August, and I learned that the Oregon Highway Department still hasn't cleared up the entire situation. There are still several mining claims whose owners haven't been found yet. Even with the ten dollars per acre payment, the mining claim owners still retain all the surface rights to the balance of the area of their mining claims.

All these claims have been filed on pumice. There are literally square miles of the stuff in that area of the Deschutes National Forest. It is interesting to point out that all mining claims on pumice in the Deschutes have been filed on lands containing valuable stands of ponderosa pine.

Also in the area are extensive

reaches of lodgepole pine growing on a pumice overlay. Lodgepole pine is worth comparatively little on the open lumber market. There are virtually no mining claims filed on stands of lodgepole pine, yet many such areas, rich in pumice, are adjacent to the Southern Pacific railroad and the highway—which makes for easy hauling of any pumice that may be mined.

I leave it to you. What are the mine claimants really after? Pumice or ponderosa pine?

Mining claims staked at highway intersections are not infrequent occurrences. The reason for such activity is apparent. The property is valuable from a commercial standpoint. Several miles south of the relocated portion of the same, The Dalles-California Highway is a junction with another major road. Seventy-five placer claims on pumice are plastered around that intersection.

These claims were all filed immediately after The Dalles-California Highway was surveyed. The pumice is definitely poor grade, and assessment work is kept up by digging holes here and there.

Under ordinary circumstances the Forest Service would issue a special

permit for the erection of suitable tourist facilities. As matters stand now, nothing is being done to improve the intersection. The Forest Service is stymied by the 75 mining claims. The claimants haven't tried to go to patent yet, nor are they likely to, as the Service stands ready to vigorously oppose them in case they try it.

In the meantime, the situation is a stalemate. Mine claimants have control of valuable public property and refuse to release it.

One of the favorite dodges of the phony miner is to so obscure his "discovery" locations that it is almost impossible to find them on the claim.

Right now there are some 3000 acres of mining claims in the Siskiyou National Forest in Oregon alone whose definite locations are not known. To date, the Forest Service has been unable to pin them down.

As matters stand now, the Forest Service is waging a 24-hour a day battle to retain the natural resources of America for its people. The phony miner is using every trick in the book to seize these publicly-owned natural resources, and every time he succeeds, another segment of the nation's wealth is torn away.

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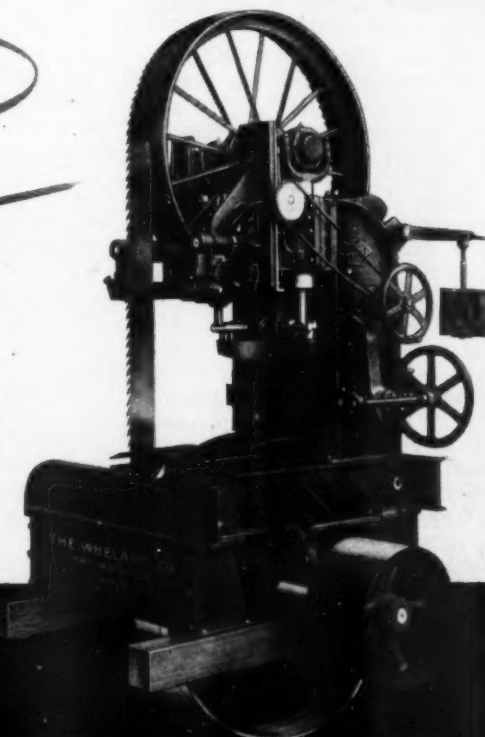
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IT IS THE CONSENSUS among experts that most major tree wounds—probably 90 percent—are preventable. If a young tree is properly chosen for the site it is to occupy, if it is planted with some degree of care, pruned and trained to develop a strong branch structure, and watered, fertilized and sprayed at necessary intervals, there is no reason why the average tree should ever require major repairs.

Of course, even the finest shade trees occasionally suffer serious injuries and disfigurement through causes beyond human control, but it is safe to say that the majority of tree wounds can be traced to carelessness or ignorance.

The care which our trees demand starts even before they are planted in their permanent homes. In a recent article in this series, those points which enter into the selection of a tree for a particular site—soil, drainage, exposure, climate and other environmental factors—were considered in some detail so that additional discussion of these factors seems unnecessary at this time.

Certain other types of tree troubles—girdling roots, for example—may be avoided if the tree is carefully planted, making sure that it is firmly set at the proper depth in a prepared bed of good soil, with the roots spread out in a normal manner without cramping or twisting.

Many a tree has been ruined at this stage of its existence by guying or staking with wires bound tightly around the rapidly expanding stem. Small lag screws inserted into the tree—if the trunk diameter is sufficient—to which guy wires are attached, are preferable to guys which encircle the trunk, even if protected by a short piece of rubber hose. For a very small tree, a stout stake driven

alongside and connected by a short piece of soft rope or burlap will do for support. But even this needs to be loosened occasionally to prevent constriction.

The development of a strong, well-spaced branch framework by means of judicious pruning is the next consideration in a program of wound prevention. Small cuts, made close to the trunk or parent limbs, properly painted, will heal quickly and thus prevent infection by closing the door to fungus spores.

There is no more important limiting factor of growth than adequate, but not superfluous, moisture. A vigorous tree is equipped by nature to withstand attacks by some insects and diseases, so if we are to prevent injuries from these agencies it behooves us to look to the moisture supply of our shade trees. A deep soaking when the ground is dry is preferable to frequent light sprinklings which tend to stimulate root development close to the surface where the tender rootlets are easily affected by drought and frost.

It is rarely possible to keep our trees entirely free from injurious insects and diseases but, while some are extremely difficult or even impossible to control, most of the commoner pests may be kept in check by suitable sprays. These have to be applied at the time when the attacking hordes of insects or disease spores are most vulnerable, however, and the tree owner will need to become acquainted with the pests prevalent in his neighborhood if his control efforts are to have maximum effect. Your state agricultural or forestry experimental station will gladly give you information along this line.

One of the commonest causes of wounds in mature trees is from splitting limbs. Not all species of trees

are equally susceptible to injury from this cause because of differences in structure. Those trees which develop V-shaped crotches are not infrequently injured by splitting, but those which develop U-shaped crotches are rarely subjected to injury from this cause because of the stronger structural arrangement of the woody elements. Even if your trees are of the former type there is no reason why damage cannot be prevented by bracing them with steel or copper cables placed high up in the crown and steel bolts through or just above the crotches.

Lightning is another important source of tree wounds; the severity of the injury presumably being dependent on the intensity of the stroke. There is no need to permit our trees to be destroyed or mutilated by this manifestation of nature, however, since lightning protection for trees is now a practical reality.

The home builder is often his own worst enemy when it comes to tree injuries. Not infrequently he chooses the site for his new home because of the trees on the lot. Then he proceeds to dig his cellar, piling the excavated material around the trees; he then permits trucks to drive repeatedly over the root systems; he piles materials against trunks; he lays out walks and driveways, cutting off any roots encountered; and finally he winds guy wires around the trees to serve as supports for temporary derricks. Perhaps he even builds fires close to the trees to dispose of waste materials—and then wonders why the trees respond by developing serious wounds and injuries.

Isn't it sensible to protect trees by using a little judgment before the harm is done? Some damage, per-

haps, is unavoidable, but a great deal may be avoided in many instances by suitable precautionary measures. When conditions permit, the site for the house frequently may be changed slightly to avoid serious root cutting and barricades will keep trucks off the root systems and prevent damage by jarring, compaction and puddling of the soil as well as bruises on the trunks.

Plans for walks and driveways, not infrequently, may be modified to prevent root cutting and, if care is used in digging service trenches, roots can be undermined instead of being severed.

Even after the house is built and occupied, constant care will be needed to avoid tree injuries. When the final grading is done make sure that grades around trees are not changed appreciably or, if this is unavoidable, that suitable precautionary measures are taken to prevent root smothering; that clotheslines do not encircle trunks; that seats are not wedged between trees; that the boy who cuts the lawn does not bang the trunks with his lawnmower; and that any wounds which now exist are properly treated to prevent decay and promote healing. Remember, an ounce of prevention is worth many pounds of cure.

AFA By-Laws Changed

The Board of Directors of The American Forestry Association announced on January 30 after its meeting in Washington, D. C. a change in the Association's By-Laws with reference to the election of officers.

The change was made in Article VI, Section 1, line 3, page 9 of the By-Laws.

The first sentence is changed to read:

"The Honorary Vice Presidents shall be elected annually by the members of the Association; the President, the two Vice Presidents and the Treasurer shall be elected annually by the Board of Directors."

The Members of the Board of Directors shall continue to be elected by the Association's membership through the annual ballot. The above amendment to the By-Laws is published in this issue of the magazine as provided for under Article XII—Amendments, on page 12.



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... The Farm Forester

ARE you getting the ultimate in service your farm forester has to offer? Do you know where and how to contact him; what the functions of his job entail?

The farm forester or service forester, sometimes referred to as the "project forester" or your "local forester," is stationed in the local community and has a definite forest management project area to serve. Some 250 farm foresters employed under terms of the Cooperative Forest Management Act of 1950 which replaced the Norris-Doxey Cooperative Farm Forestry Act of May 18, 1937, are responsible for giving on-the-ground forest management assistance to individual small woodland owners. Each forester has from three to five counties in his project area. At present, more than 1000 counties are included in the project areas. More than twice this many foresters are needed to serve adequately the counties now included in the project areas.

The farm forester is a busy man. Usually living in a small community, he makes many friends and in his free time is engaged in numerous social and community activities. Working with farmers, local agricultural technicians, school teachers, bankers, merchants or other owners of small forests and the small sawmill operators, he helps to solve forest management problems in the community.

Upon receiving a request for assistance the farm forester visits the woodland in company with the owner to determine what the owner has in mind and what the woodland needs in the way of management. Sometimes the farm forester must convince the owner that it is to his interest to adopt improved practices. The forester will make a simple management plan covering such operations as timber cutting, planting, thinning, pruning and protection from fire, insects, and grazing, the selection of den trees and other

considerations for the betterment of wildlife in the woodland.

When the farm forester finds that the landowner has timber ready for harvest he recommends a method of cutting.

Further he works with the owner marking the trees to be cut, helps estimate the volume, and advises on marketing the products. When thinning, pruning, planting, or fire-protection measures are needed, the forester shows the owner what to do and how to do it.

Every forest property is a special problem because forest conditions vary in species, age, type, and condition. The financial conditions and needs of the individual landowner

also vary and must be considered. In brief, what the farm forester does is to use his technical knowledge and skill to size up a particular forest property, make specific recommendations for that one individual property, and counsel the landowner in proper methods of carrying out these recommendations.

For information as to the whereabouts of the farm forester in your locality, write or telephone the state forester at the state capitol or the state extension forester at the state agricultural college. The Soil Conservation District supervisor, the county agent, and any officer of the U. S. Forest Service or Soil Conservation Service will know where he is located.

A project forester and owner look over latter's pole stand woodlot
USFS photo



"Whipped by Arsonists," Planter Reports

Key organizations and groups in Pearl county, Mississippi, in February were rallying to the support of an indignant Picayune, Mississippi, lumberman and tree planter who called a halt to a 10-year reforestation program when 20,000 acres of his woodlands — or all the trees planted in a decade — went up in smoke in one week.

L. O. Crosby, Jr., of the Crosby Forest Products Company, said his crews had diligently fought fires set by arsonists for 10 straight years but that he had to face reality when holdings that had cost thousands of dollars to plant were all consumed by fires in one week's time.

"I've been whipped by arsonists," Mr. Crosby announced. "And while I hate a quitter I've just got to face reality on this thing. I am suspending all replanting work—operations that would have meant employment for hundreds of people—until such a time as there are proper laws and the public sentiment is such that will give a tree planter a degree of security."

Declaring that it has been a popular indoor sport to hurl brickbats at lumbermen for years, Mr. Crosby an-

nounced that he planned to hurl a few himself in stating that the "fire situation in this county is a disgrace."

"When we started 10 years ago, we started with pine," the lumberman said. "I knew I couldn't plant longleaf because the sheep would eat the terminal buds and the hogs would eat the roots. So we selected slash pine. The sheep and the hogs didn't get that but the arsonists finally did."

"Some will say that these fires came about through mere carelessness but we know that isn't so," Mr. Crosby said. "We've found matches banded together with rubber bands thrown into the grass where it would burn after the foresters left the area. We have seen them go in and out of the reedbreaks hiding from our air patrol."

When newspapers in the area carried the story of Mr. Crosby's misfortune, civic organizations called a county-wide meeting to formulate plans on how to halt woods fires in their county and to stop timber waste that is being spelled out in loss of income and employment.



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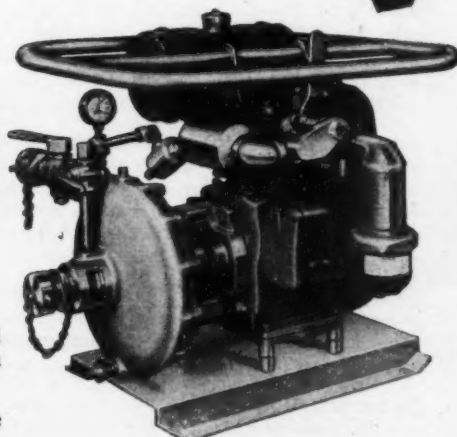
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Protests on Olympic Park

President Truman's last minute addition by executive decree of 47,753 acres of forest land to the Olympic National Park has aroused bitter opposition from public officials, labor and industry groups, newspapers and citizens of Washington state. Truman's action has been termed "capricious," "snap judgment," "arbitrary" and "in defiance of the recommendation of Washington's Governor Langlie."

The Seattle Times, in a series of editorials urges public hearings to bring out all the facts. It asks also for a Congressional check on such powers of the chief executive. "How natural resources can best be utilized," the TIMES says editorially, "and conserved should be determined on the basis of economic and scientific, not political, considerations."

Governor Arthur Langlie has repeatedly opposed enlargement of the park, but his recommendations were ignored by President Truman.

The Aberdeen World says the act adds substantially to the billions of feet of timber condemned to rot, as is the case in the huge Olympic National Park. THE WORLD thinks the government should be consistent. It cites the National Security Resources Board's support of sustained yield and tree farming as the proper way to handle forest lands, then says this executive order of Truman's tells the Interior Department to lock up our forests in national parks and let them rot.

Congressman Russell Mack, (R) Washington, has strongly criticized the President's action. He calls it a "grandiose experiment in socializing the tourist resort industry of the coastal region of Washington, at the taxpayer's expense." Congressman Mack said a half billion dollars worth of timber was altogether too much to lock up. He wants certain areas turned back to the U. S. Forest Service for sustained yield management.

Bernard L. Orell, Washington State forester, says the timber locked up in the Olympic National Park "will never contribute to the growing of young, vigorous trees which are essential to the perpetuity of the forest industries of the state."

Congressman Jack Westland, one of Washington's newest representatives, said he was astonished at Truman's "capricious and arbitrary action" in the dying days of his administration. Congressmen Walt Horan and Thomas M. Pelly, Republicans, Washington, have joined with Congressmen Mack and Westland in demanding a public review of the entire Olympic Park question. Congressman Mack also said the lands included were not of park caliber and he advised the president the park "locks up against use" some 17 billion feet of usable timber.

Lena Fletcher, a native and resident for over 50 years of the tiny community of Forks, on the edge of the park, in a letter to the SEATTLE TIMES on January 25, says in part, "In fact, the park, which our parlor naturalists designed, has become a death trap to its wildlife. They did not care that millions of feet of timber would fall before the winds and lie a rotting waste on the ground—as it actually has."

Chambers of commerce at Seattle, Aberdeen, Hoquiam and elsewhere about the state have consistently opposed undue enlargement of the park without regard to basic economic considerations of communities dependent upon the raw material thus hoarded and wasted.

On last March 16th, the SEATTLE TIMES observed, "... the suspicion arises that the National Park Service is beginning to find its immense domain in the Olympic National Park something of a 'white elephant'." Then this journal calls attention to the fact that Congressman (now Senator) Jackson, of Washington, would authorize the park service to dispose of wind-blown, fallen and insect-damaged timber in the park. The TIMES questions the merit of the bill because so very little timber would be saved, and suggests that all overage trees, now rotting, be removed under a careful program of forest management.

Nature on the Rampage

(From page 22)

The two observers in the rear seat mapped the blowdown.

Each observer was supplied with a quadrangle map of the area being flown and it was the pilot's job to fly true and straight and low. He had to hug the treetops to give his three observers the best possible look at the timber, generally keeping 1000 feet above the ridges.

During the month of July, these modern flying mappers had covered ten and a half million acres. They had flown a combined total of 788 hours. They had missed only two hours of flying time during the entire month. Some of the worst of the forest battleground in southwest Oregon was photographed from the air for more intensive study.

The entire project cost something less than seven-tenths of a cent per acre, a total cost for the vast mapping and photographing job of about \$83,000. Some of this was donated by the state of Oregon and some shared by private landowners and other agencies.

Greeley's maps and data were turned over to Furniss and other experts for study. Only then, when all the survey information was gathered together, was the full and awesome story unfolded. Breakage of nearby trees when the big boys fell, breakage of tops out of trees still left standing and general damage made whole sections of the forest look like battlegrounds where heavy artillery had pounded for weeks. Trees were scattered like toothpicks.

The hurricane was no respecter of property lines, for damage was as extensive in the scattered two and a half million acres of O & C lands as on national forests and private lands.

The maps were quickly placed in the hands of all private owners whose property was concerned by the Industrial-Forestry Association and also distributed widely to state and federal agencies. Ground crews were soon put to work to check damage areas shown on the maps and photographs so these could be translated into more accurate data for salvage. All through the job the key word was *hurry, hurry, hurry*.

The maps and pictures unfolded another story. If the damage had been concentrated in one general area the salvage job would have been immensely simplified. But, it

was not. Here a single tree went down. Maybe 20 to 30 trees to an acre in another area. On the lee side of an exposed ridge solid acres of timber would be laid like tenpins, with not a tree left standing. All through the millions of acres timber was knocked willy-nilly, without a pattern. The damage from both beetles and wind was scattered over a vast area.

As hard hit as any was private timber in Coos county. As soon as the study was in hand, logging emphasis on most private forests was shifted to windblown and beetle-killed timber. Millions of feet were salvaged during 1952 and the harvest of damaged trees will be stepped up in the next few years.

Lands administered by the Bureau of Land Management, which spread like a checkerboard through much of western Oregon, with alternate sections owned by private individuals or companies, were hard hit. So were lands administered by the United States Forest Service.

Best estimate is that 250 million board feet were salvaged last year. That is just a drop in the bucket compared to what will have to be taken out in the years ahead to avoid serious and crippling loss to industry and communities in these areas.

T. M. Tyrrell, BLM's chief forester, estimates that three billion feet of the damaged and killed timber is on lands administered by that federal agency.

The very nature of the damage and destruction confounds the salvage job. Logging roads must be built on some 7000 sections where the loss is most severe. Existing roads can serve only a portion of the huge disaster region.

Some idea of the enormity of the undertaking confronting the salvage logging operations was offered by C. W. Richen, Crown Zellerbach's chief forester and a moving spirit in the vast undertaking. Richen estimates that at least 7000 miles of mainline logging road must be built if the great bulk of the beetle-killed timber is logged while it is still usable. At a cost of \$20,000 a mile, that means a fund of \$140,000,000 will be required to open up these wilderness, virgin forests for salvage.

Some \$100,000,000 worth of stumpage on a conservative estimate of \$10 per thousand feet is involved. Translated into product value, if made into lumber, there is \$800,000,000 worth of lumber in these beetle-killed and windblown trees; the latter already infested with bee-



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Fourth American Forest Congress
October 29, 30 and 31, 1953
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ties. Estimates are that all of the blowdown trees will be hosts to beetles the first year after windblown.

It should be pointed out that the timber access roads contemplated to enable early salvage of the killed timber will not only open up great areas for this purpose, but will supply in the future a two-fold use: 1) will serve as fire protection roads, 2) will provide transportation facilities to harvest billions of feet of non-beetle-killed timber, and, 3) will enable more rapid salvage in the future. So, of the first cost for these thousands of miles of timber salvage roads, only a small fraction will ultimately be charged to salvage logging. Under normal logging conditions, these roads would have been built in an orderly manner decades into the future.

An idea of the magnitude of this gigantic undertaking to open up these forests with mainline logging roads is seen in a comparison with existing paved roads in Oregon. In all the state there are about 7000 miles of paved roads today.

Logging engineers estimate that it takes from four to five miles of main and lateral logging roads to develop and log a section of timberland. So, multiply the estimated 7000 miles of mainline roads by four to get a minimum picture of all roads needed to get at this timber—28,000 miles.

Another reason for the hurry-up salvage is found in the most recent survey of destruction wrought by the beetle. In a study made on the Weyerhaeuser Millicoma Tree Farm of deterioration of beetle-killed trees by Dr. Ernest Wright and Kenneth Wright, pathologists and entomologists respectively, with the forest insect laboratory, the seriousness of the present situation was underlined.

Here are the Wrights' findings:

1) Decay of sapwood, which on the average represents 21.3 percent of the total contents of the study

trees, is well advanced after two years and practically complete after three years.

2) At the end of six years approximately 75 percent of the volume of beetle-killed trees is still sound.

3) Where a choice exists, broken-top trees should be taken first, because rot advances more rapidly in these trees.

4) Penetration of wood-boring insects occurred at about the same rate and in conjunction with rot. However, activity of borers will likely be accelerated because of the large amount of favorable breeding material now available.

5) There appears to be a strong correlation between location and intensity of attack by the beetles and subsequent decay.

Bark beetles are known to carry the spores of many fungi. A brown cubical rot caused by *Fomes pinicola* appears to be prevalent in the beetle-killed trees. At any rate, foresters, loggers and landowners now have their job complicated by the additional threat of fungi damage and borer attack on these millions of killed trees.

Another view of the Douglasfir beetle, the native critter with the big appetite and the propensity for emulating the rabbit in breeding, serves to highlight the immediate problem. Normally, the beetle when working only in green timber has a breeding ratio of one-to-one. So he barely holds his own. But in freshly-killed timber the breeding ratio skyrockets to five-to-one. Ordinarily after spreading in a small burn he will quickly drop back to endemic state when the big free meal of succulent cambium layer found in the newly-killed trees runs out and he is forced into green timber. But the current vast offering of food dropped on his dinner table gives him a terrific impetus and the resulting damage to green timber will be colossal. Now, he has a real headstart and will be tough to head off short of catastrophic disaster to additional billions of feet. He will run his course in five years, Furniss believes, unless nature again upsets the normal checks and balances usually applied to her insect hordes.

The real problem which confronts all the timberland agencies involved in this terrific salvage race against rot and insects is how to get the endless miles of roads built into these undeveloped areas in time to do any good. Financing of the needed timber access roads is a big job. Problems of mixed, checkerboard owner-

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ship throughout the region will not simplify the engineering, construction and road location work. Division of costs, workable right-of-way solutions between private and federal agencies without prejudice to property rights and long-range management are just a few of the complex and monumental details confronting these sincere men who are attempting to work out the greatest timber salvage undertaking in man's long history on this continent.

The combined efforts of private and public forest agencies will be needed in the next few years to create a salvage logging road system of suitable size to tap 1400 sections of killed and blowdown timber. It will take cooperation such as has been evidenced this past year by all agencies involved in the preliminary stages of this herculean saving of timber. In many cases these roads will be built several years in advance of the projected schedules where tree farmers are operating on a long-range cutting cycle.

One thing is certain, foresters and those men charged with fire protection, will welcome the coming of roads into this 10 million-acre jungle. They reason that fires are almost a mathematical surety in an area where so much dead fuel lies on the ground. Construction of the road network sufficient to enable salvage of the bulk of the beetle-killed and windblown timber, will make their job easier in the years to come. Without these roads, fires will be a curse and a red nightmare.

The Whole Story

(From page 12)

livestock operators would like to have it as they did before the Taylor Grazing Act "for free." National forest timberland is not sold. If it were, there would be an end to the uses and services that the public enjoys as a result of government management. Water supply protection would cease, recreation would suffer, consistent and long-term forest and range planning, study, control and direction would stop and in the end a great share of the nation's timber supply would be exhausted.

It is unlikely that the attack will succeed. Certainly it cannot do so on the strength of the arguments so far presented. If the proponents undertake to carry their case further let them tell the whole story.

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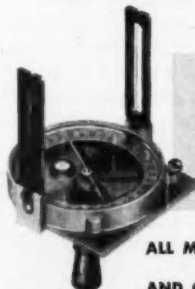
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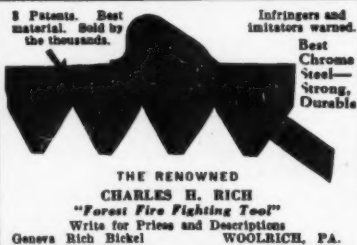
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Man's Great Search

(From page 18)

away the secret of papermaking — nearly a century after Tsai Lun. Linen and cotton they could use easily, but not tree fibers. A ribald song celebrates the omission of tails from the monkeys of Zamboanga. More important for our balladry would be the fact that there were no trees in Samarkand. The central discovery of Tsai Lun fell on the infertile sands of the desert.

Therefore the paper finally made in Spain in 1150, in France in 1189, in Germany in 1320 (note how painfully slow the mutilated secret crept around the globe!) was still made of textiles, of rags. It was fine paper indeed, as rag papers often are; but it was hard and slow in the making, and very dear.

Even the knowledge of making paper from rags did not span the narrow English Channel until 1494, two years after Columbus saw the giant trees of the New World. England was displaying the traits that would make her a great manufacturing nation and mistress of commerce. But because she was to invest great parts of her genius in factories and ships she eventually chose coal as the magic substance for the core of her glory. It is curious to observe that even there she was releasing ancient energies of plant and wood cellulose. But it was not England which was to first make the next and most important step toward discovering what Tsai Lun had known centuries past.

She tried hard to further the search for an abundant papermaking fiber, as did all cultured nations. For of course the demand for paper was rising enormously; the needs and pressures were greater even than in our own century when per capita consumption of paper has risen in the U. S. to 400 pounds annually for every man, woman and child—twice what it was in 1926!

There *had* to be a new source of raw material for paper, else in the face of growing populations and increases of knowledge and commerce, civilization would stop, literally. To make textiles only in order to extricate the fibers for papermaking was of course impractical, as impractical as the use of textile threads for paper manufacture. Rags grew more precious. Millions wore rags; mil-

lions more found good use for them; the value of the rag-bag is a memory within the minds of the present generations. Later, in America, rags were scarce for still another reason. A human eye had yet to see a microscope, but health authorities understood that rags imported from plague areas brought sickness and death. At one time the Colonies were forced to put an embargo on rags. In this crisis at least one early papermaker purchased a mummy from Egypt—for the hundreds of yards of linen fibers in the shroud!

Historians of commerce have found that incident either faintly amusing or faintly unpleasant, but at least it points up the drastic shortage of fibers in early America. Scarcity of paper touched all educated classes. George Washington had to haul Mount Vernon rags to his papermaker before he could receive 20 reams of foolscap which, accordingly, he used with care.

But of course the Colonies were not alone in being "rag poor." They simply helped to make the shortage of fibers nearly world-wide. And that is why, in 1719, a French scientist, Rene Antoine Ferchault de Reaumur, wrote a certain report to the French Royal Academy. When that brief report was finished I am sure Tsai Lun smiled in his Celestial Heaven; the smile of one great scientist to another, transcending barriers of race and nation and time.

Nobody took appropriate notice of Reaumur's report initially. The trouble with his idea was the thing that makes all great ideas so difficult to grasp. It was quite simple and could be stated simply: he had observed the world shortage of fibers; in that connection he had observed likewise that American wasps made nests which were very much like paper; and moreover, he had found that such nests were made of wood fibers—in short, of bark which had been "defibrated" by the jaws of the wasp!

He said quite simply that he felt that some research along this line might solve the search for a more abundant fiber for papermaking.

Yet almost 20 years later he was to observe sadly that, despite his hopes, nobody apparently had followed his

(Turn to page 43)



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Three Key AFA Members Selected To Advise Muskingum District

Three key men in The American Forestry Association—Ovid Butler, executive director emeritus and honorary vice president; Col. William B. Greeley, honorary vice president and former member of the Board of Directors; and Director-Forester Designate Lowell Besley—were named to a three-man advisory committee on Jan. 30 to help point up an expanded forestry program for the Muskingum Watershed Conservancy District, New Philadelphia, Ohio.

The committee was named by AFA President Don P. Johnston after the Association's Board of Directors took favorable action on the request for the formation of such a committee by Bryce C. Browning, secretary-treasurer of the Muskingum District.

In his presentation before the Board, Mr. Browning said that The American Forestry Association was largely instrumental in widely-publicizing the Ohio Conservancy District with the result that it is now known all over the world and has become a model for valley development work. In all, there are now some 200 so-called small valley development projects in the nation.

Since its inception, the District has completely checked floods in a once flood-ravaged valley by the construction of 14 dams on tributaries of the Muskingum River. By preventing floods in the Muskingum watershed, the District has brought benefits estimated at 17 million dollars to the area, and the figure increases every spring.

The District operates entirely on its own income, has received no tax

income since 1939 and in addition pays taxes on the 65,000 acres of land it owns. In line with a policy laid down years ago, it does not duplicate the work of any other government agency.

More than two and a half million people a year now visit the recreation area created by 14 man-made lakes and the District also controls 20,000 acres of farm land. The District includes 18,000 acres of woodland and adds nearly a thousand acres of new planting each year with the whole tract serving as a laboratory on the economics of lumbering.

At the AFA Board meeting, Mr. Browning said, "Our primary conservation activity is in the field of forestry. It seems probable that we have pioneered in certain phases of this field. This results primarily from the enthusiasm and ability of our forester (Herb Garritt) who is loaned to us by the Soil Conservation Service. Under his guidance we have planted some three million trees and have carried on a rather general program of woods improvement. The interesting part about this program is that it is carried on at practically no direct cost to the District. In other words, the improvements have been largely paid for out of the income from the forestry operations."

Details on the scope of the work of the new AFA advisory committee have not as yet been fully worked out but Chairman Butler said the work would involve two or three visits to the Muskingum a year and a careful study made. Details of this work will be published in future issues of AMERICAN FORESTS.



Mr. Besley



Mr. Butler



Col. Greeley

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Man's Great Search

(From page 40)

suggestion—and he himself had been too busy with other projects!

Nonetheless, man was again getting close to the secret which Tsai Lun had discovered so long before. After Reaumur—who in some histories of pulp and paper is not mentioned at all!—it is difficult, if not impossible, to give credit where credit is due in the long search. The English and the Germans were particularly effective in following the leads of the Frenchman and the Chinese scholar, and in any history of wood pulp the name of a Britisher—Mathias Koop—must be forever bright.

In our own country, no less than in others now, it became a business of pure trial and error. The first of materials to prove successful on a commercial scale was straw, in 1849, at Springfield, Massachusetts, where white paper was made from this material. But of course straw presented the same basic problem in raw material as did rags. With the use of it, paper manufacture was still the tail to the kite, or—to change the figure—the prisoner of an industry to which it was not related.

In truth, the romance of the long, long search had two endings only; it ended, the romance, with Tsai Lun and—centuries later—with that observant member of the French Academy. The end of the search forever,

the final round-up of the economical and abundant fibers, is doubtless best told in the prosaic and practical fashion chosen by John A. Guthrie in *THE ECONOMICS OF PULP AND PAPER*. Says he:

"Although the process for making paper from basswood had been patented as early as 1830, the use of wood on a commercial scale did not begin until after 1850. The soda (pulp) process introduced about 1855 was the first employed on this continent. Within the next decade sulphite and groundwood pulp were also being manufactured commercially. The sulphate process (kraft) was discovered in Europe about 1886—but was not employed in the United States until 1909."

In other words, here is what happened: some time between 1850 and the beginning of the war between the states this nation ended its own search for the more abundant fiber for papermaking. Whatever new processes, or new species, may have been involved in papermaking later—or in the future we dream of now—is of no moment to this essay.

Because it may be said that the long search for the magic fibers of the forest ended here. It ended here because the greatest producer of wood fibers today is the North American continent with its great and perpetual forests.

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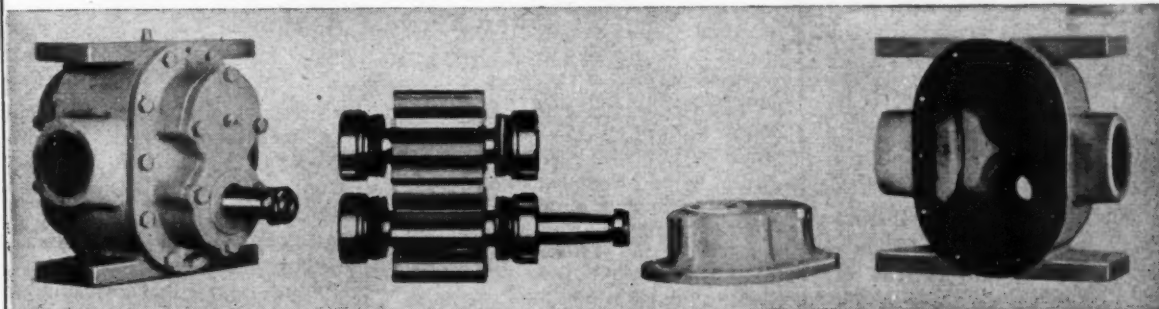
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Key Conservationists — Aiken

(From page 13)

estry, Senator Aiken commented, "I've never known the Forest Service to do anything in Vermont without first consulting with proper state authorities. Certainly no one thinks of the Forest Service as a bureaucracy."

While Senator Aiken believes public opinion will be dead set against any major inroads on public lands by special interests, he thinks it is possible that the status of grazers' rights and privileges on public land will be reviewed—which ties in with the new theme of "more encouragement" for citizens consistent with the welfare of the country as a whole.

Senator Aiken is not inclined to make any long range predictions at this point regarding the future of either agriculture or forestry but stressed that the people of the nation will find the new administration a friendly one with its key men ready to listen to all groups. The emphasis, he repeated again, will be on study and review for the present.

Like the new Secretary of Agriculture, Ezra Taft Benson, Senator Aiken has a farm background. Following in his father's footsteps, he became a farmer and market gardener. Beginning in 1912, he started raising small fruit and built this business, together with the commercial cultivation of wild flowers, into what is known as the Aiken Nurseries in Putney, Vermont. He has since expanded this business and has acquired timberland. He became master of the Putney, Vermont, Grange at the age of 18 and three

years later helped to organize the Windham County Farm Bureau, the second to be founded in Vermont. He is also proud of the fact that Vermont was the first state to have county foresters in every county in the state—says that the impact of these men has been strong.

In Congress, Senator Aiken is known as a progressive Republican. He is a supporter of adequate care for needy persons, ample education, and sufficient medical and hospital care. He believes private means should be used whenever possible but, if insufficient, he would have the government lend a hand, but would not have the government go so far as to sacrifice or impair the liberty and freedom of the individual. The town meetings in his native state have had a solid influence on him and he is of the opinion this approach to problems exerts a powerful influence on the American way of doing things.

Members of the Senate Committee on Agriculture and Forestry which Senator Aiken heads are: Republicans—Milton R. Young, North Dakota; Edward J. Thye, Minnesota; Bourke B. Hickenlooper, Iowa; Karl E. Mundt, South Dakota; John J. Williams, Delaware; Andrew F. Schoepel, Kansas; and Herman Welker, Idaho; Democrats—Allen J. Ellender, Louisiana; Clyde R. Hoey, North Carolina; Olin D. Johnson, South Carolina; Spessard L. Holland, Florida; Clinton P. Anderson, New Mexico; James O. Eastland, Mississippi; and Earle C. Clements, Kentucky.

Rep. Clifford R. Hope

(From page 13)

The Congressmen described as "a little fantastic" the recently-circulated proposal that federal land acquisition be suspended immediately until a study determines how federal holdings can best be reduced and what lands can be placed on the selling block for competitive bidding by private industry.

"I am absolutely opposed to any reduction in federal land holdings other than those orderly withdrawals provided for under existing laws," he said. He added that while he thought the plan to reduce federal land holdings was too "radical" to gain much serious support, he had heard that

governors of some western states and spokesmen for certain cattle grower groups had lined up behind the U. S. Chamber of Commerce-initiated proposal.

An ex-Speaker of the Kansas House of Representatives (1925-26), Rep. Hope has represented the Sunflower State in the U. S. House since 1927. Serving longer in the House than any member ever elected from Kansas, the Agriculture Committee Chairman has been on this committee's roster since first entering Congress. He has been ranking Republican member of the Committee since 1932

and served as its Chairman during the 80th Congress (1947-48).

A lawyer as well as conservationist, Rep. Hope was a member of the United States delegation at the first meeting of the United Nations Food and Agriculture Organization and served in that capacity at subsequent meetings of the FAO all over the world. He was Congressional advisor to the American delegation to the Inter-American Conservation Conference in 1948 and is a member of the Missouri Basin Survey Commission.

The Kansan has played a part in formulation and enactment of all agricultural and conservation legislation during the period covered by his

more than a quarter of a century of service in Congress. He has been especially active in legislation dealing with research and education and is co-author of the Research and Marketing Act of 1936. A leader in Boys and Girls Club work, Rep. Hope was awarded the degree of Honorary American Farmer by Future Farmers of America in 1950 and received the American Farm Bureau award for distinguished and meritorious service in the interest of organized agriculture in 1946.

A grandfather and veteran of overseas military service, Rep. Hope calls Garden City, Kansas home. He represents his state's fifth Congressional district.

AFA's Forest Clinic

(From page 28)

from pine to oak and back to pine occurs only in the spring from about March to May.

Control: The practical control of the fusiform rust involves several procedures, each of which contributes in some measure to the solution of the problem as a whole.

Infection of nursery stock can largely be prevented by spraying with 4-4-50 bordeaux mixture or with a solution of two pounds of ferbam in 100 gallons of water at weekly intervals from the time the seeds begin to germinate until mid-June.

In the selection of areas of field planting or for managed natural stands, avoid if possible areas which have a high fusiform rust hazard. This may be judged by rating the abundance of rust cankers on young pines within a mile of the planting site. If high rust hazard cannot be avoided, loblolly should be favored over slash pine.

The spacing of slash pine in plantations has recently been shown to markedly affect the amount of damage from fusiform rust. In areas of fairly high rust hazard, the denser (4 x 5 feet) plantings have shown a lower percentage of stem-cankered trees. This effect has been attributed to the more rapid natural pruning in the denser stands; thus many infected branches die before the cankers reach the trunk.

Mechanical pruning of infected branches before the cankers reach the stem will reduce the amount of stem cankering and should aid in minimizing the final rust damage to

a stand. Pruning is most effective on trees two to five years old with few trunk cankers and many living branch infections within 15 inches of the stem. It is not necessary to destroy the cankers on the pruned branches; the fungus dies soon after the branch dies.

The development of rust-resistant slash and loblolly pines appears feasible. Research along this line is in progress but much more will undoubtedly be necessary before that goal is attained.

The use of controlled fires in young slash pine stands is not recommended as a control measure for fusiform rust. Although a fire may kill many of the branch cankers and thereby immediately lessen the hazard of late trunk infections, it also induces an early spring growth; thus, abnormal amounts of succulent tissues are exposed when weather conditions most favorable to pine infection are likely to prevail. Cultivation and fertilization also tend to increase the fusiform rust hazard by inducing an early break in winter dormancy.

Cutting of all fusiform rust infected pines and eradication of susceptible oak trees are not recommended as control measures for the disease. The infection spores of the fungus may be carried by air currents over a quarter of a mile from oak to pine and even farther from pine to oak. The susceptible oaks are so prevalent in the fusiform rust areas and so notoriously difficult to eradicate that these sanitation measures are not considered practical.

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Quetico-Superior Wilderness—Superior National Forest, Minnesota. Two 10-day expeditions by canoe—July 5 to 14 and July 18 to 27. Cost, \$195 from Ely.

Sawtooth Wilderness—Sawtooth and Boise National Forests, Idaho. Two 11-day expeditions—July 21 to 31 and August 4 to 14. Cost, \$205 from Sun Valley.

High Uintas Wilderness—Ashley National Forest, Utah. Two 11-day expeditions—July 26 to August 5 and August 6 to 16. Cost, \$215 from Roosevelt.

Maroon Bells-Snowmass Wilderness—White River and Gunnison National Forests, Colorado. Three 11-day expeditions—July 27 to August 6, August 11 to 21 and August 26 to September 5. Cost, \$215 from Glenwood Springs.

San Juan Wilderness—San Juan National Forest, Colorado. Two 11-day expeditions—August 15 to 25 and September 1 to 11. Cost, \$215 from Durango.

Cascade Crest Wilderness—Snoqualmie and Gifford Pinchot National Forests, Washington. One 13-day expedition—August 17 to 29. Cost, \$215 from Yakima.

Pecos Wilderness—Santa Fe National Forest, New Mexico. One 12-day expedition—September 9 to 20. Cost, \$215 from Santa Fe.

Glacier Peak-Lake Chelan, North Cascades Wilderness, Chelan, Mt. Baker and Wenatchee National Forests, Washington. Two 13-day expeditions—August 3 to 15 and August 15 to 27. Cost, \$215 from Wenatchee.

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20 Years on the Trail

(From page 23)

acclaimed a huge success by enthusiastic trail blazers. For this season, two repeat trips are offered for the dates of July 26 to August 5 and August 6 to 16. In the High Uintas primitive area—once the hunting ground of Ute and Shoshone Indians—are tremendous forest, stream and lake-strewn valleys, brimful of silence. Here is space vast enough to awe and varied enough never to become monotonous. The Uintas are one of the nation's few east-west mountain ranges, and one rides around and between Utah's tallest peaks. Bob Davis, head football coach at Colorado A & M College, will again serve as outfitter for the parties which will come together at his U Bar Ranch in Neola, Utah.

The indescribable beauty of the high Colorado Rockies, enclosing an alpine realm of rushing streams, evergreen forests, flower-spread meadows and high-perched blue lakes, awaits the Trail Riders who will explore the Maroon Bells-Snowmass Wilderness in the White River and Gunnison National Forests this summer. Still vastly primitive country, it is the wilderness in which renowned spruce-fringed Snowmass Lake is situated, backed by soaring Hagerman Peak and the huge bulk of Snowmass Mountain. Through this land, once inhabited by the Ute Indians, riders will follow the trail of Chief Ouray and return to Glenwood Springs filled to the brim with beauty and consumed with the majesty of the primitive.

Three expeditions for the dates of July 27 to August 6, August 11 to 21 and August 26 to September 5 have been scheduled.

Packing will again be handled by Mrs. Rich Thomson of Glenwood Springs, Colorado, who took the first party of riders into this country in 1938. A woman of great energy, good humor and a life-long expert with horses, Tommy—as she is better known to the hundreds of Trail Riders who have ridden with her—will be assisted by her son, Bob, who will have returned from service with the Navy to resume his job as boss wrangler.

The little known San Juan Wilderness, in the heart of the mountainous San Juan National Forest,

Colorado, will be the scene of two expeditions, scheduled for the dates of August 15 to 25 and September 1 to 11. Northeast of Mesa Verde National Park and under the very rim of the Continental Divide, the Needle Mountains fling up their rugged crests to form one of the most dramatic and colorful wilderness areas remaining in continental United States. Windom Mountain and Sunlight Peak dominate this wild and rugged land. The parties will come together at Durango, Colorado and Joe A. Hotter, of Grand Trophy Guest Ranch, will service the expeditions.

Traveling the crest of the Cascades on the Snoqualmie and Gifford Pinchot National Forests in Washington, Trail Riders will find snow-capped peaks with aprons of eternal glaciers commanding the skyline. Such giant sentinels as Mt. Hood, Mt. Adams and Mt. Rainier stand guard over the Cascade Crest-Goat Rocks Wilderness Areas, which will be explored this year on the dates of August 17 to 29. Streams run clear, cold and fast here, and the high alpine meadows are carpeted with fragile wildflowers—marking the transition from ice to forest. Pointed spires of balsam fir and the whispering music of the conifers give a cathedral-like air to the rolling meadows. The richness of life is here in the remote valleys, the ridges, cliffs and peaks and the high alpine basins of this vast wilderness. The Misses Patricia Kane and Kay Kershaw, of the Double K Mountain Ranch at Goose Prairie, Washington, have managed the outfitting of this expedition since the initial trip in 1948. They will be on hand to lead the 1953 party through this mountain paradise.

A little farther north in Washington, other Trail Riders will assemble in the town of Wenatchee to explore the high rugged Glacier Peak-Lake Chelan country deep in the North Cascade Wilderness of the Chelan, Mt. Baker and Wenatchee National Forests. Here is one of the most scenic gems in the nation—Lake Chelan, 55 miles long and deep-sunk in the green forested canyon. This "Land of Beautiful Water," scene of the pioneer expedition last year, is characterized by

lofty peaks, living glaciers, heavily timbered slopes, lush mountain meadows, swift streams and open grassy ridges and basins. Bob Nicholson, of Spanaway, Washington, will again service the expeditions scheduled for August 3 to 15 and August 15 to 27.

In the colorful southwest, lies the last stronghold of wilderness in north-central New Mexico—the Pecos. This wilderness, in the Santa

The Hungry Steppes

(From page 25)

This forest has been raised where the ground water is from 36 to 48 feet down, where the annual precipitation is no more than 100 to 150 millimetres and the surface temperature is 70 to 80 degrees centigrade.

The trick in this achievement lies in knowing when to plant and how much. The hot winds and sun decide the answer to the first question. The amount of water in the soil—precious little at the best of times—is at its maximum in the first ten days of March, just after the winter rains. During this short period conditions for planting are at their best. The answer to “how much?” is simple. As much as possible, as quickly as possible. Hand sowing, while the most accurate and the most certain method, would not achieve much in ten days so the Russians have turned to airplanes.

This technique is said to be 50 times more efficient than seeding by hand, even though more preparatory work is needed. The most useful tree for desert afforestation has turned out to be the black saksaul, but it has snags from the point of view of aerial sowing. Saksaul seeds are winged like those of the sycamore; consequently, they have to be de-winged before use, in a brushing machine. Time was when they were sown without this precaution being taken, but it turned out that the seeds were being blown everywhere in South Russia but the right place. Not only that—the wind piled them up in neat little collections, ready made for the rodents who waxed fat with the minimum of labor. Now, after being de-winged, the seeds are loaded into bags of 180 pounds each and carried on the backs of shaggy, two-humped Bactrian camels to the take-off area. The contrast between old and new is complete as the camels, with a tradition of 20 centuries,

Fe National Forest, is dominated by Truchas Peak and is a dramatic stretch of timberline country. For the most part, it is a wilderness of sweeping forests and open parks. Crystal-clear streams and numerous small lakes are tucked away in remote corners of the high country. Trail Riders will climb to the divide of the Sangre de Cristo and the crest of Elk Mountain, with a grand climax on the summit of famous Hermit's Peak. It is here that the Penitentes have carried and erected heavy log crosses at Easter time for nearly a century.

The time for the Pecos expedition has been set for September 9 to 20, and the party will have its headquarters at Santa Fe, New Mexico. Tom Old of Brush Ranch, Tererro, will be in charge of outfitting the group. He is thoroughly familiar with the Pecos Wilderness and is a capable and efficient operator.

The water wilderness of the Quetico-Superior, in the Superior National Forest, Minnesota, is the scene for the two canoe expeditions. Coming together at Ely on July 5 and July 18, Trail Riders will paddle their canoes through this vast country of tree-studded islands, broad connecting lakes and rushing white water for ten-day trips. Again, outfitting will be handled by Fred Handberg, of the Quetico-Superior Outfitting Company at Ely.



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of load carrying in these parts of the world, stand beside the 20th Century airplanes which are to help wipe out the desert, and with it any further need for camels as transport.

If there are many sandhills in the area to be sown, they are first settled by planting camel's thorn at intervals of three to six feet in rows. When these have reached a height of 18 inches, seedlings of the Russian thistle and the kandym are planted between the now half buried rows of hardy camel thorn. The seedlings grow quickly in the settled sand—they reach a height of three to four and a half feet and bloom and produce fruit by the first spring after sowing. Into the low shrubs thus blooming on the desert's face, the saksaul seeds are sown where they can grow, protected from the sun and wind, under the rows of camel thorn and other bushes.

The area for afforestation is carefully surveyed and divided into strips 60 feet wide for planting, each strip being marked by stakes and by a man with yellow flags at each end. Between the strips a space is left to be taken care of by natural dissemination. The airplane used is the tiny and ubiquitous P02, a light two-seater, which carries the seed in a hopper between the two cockpits. With a maximum speed of about 100 mph and able to fly at speeds down to 40 mph, these old-fashioned airplanes are well suited to sowing, since they can very well fly straight and level down the rows at the controlled height of 60 feet, which the Russians have found best for this sort of work. The airplane flies down

each row until the hopper is empty, the flagmen moving from strip to strip while the planes turn at the end of each row. If the protective shrubs have grown too thick, the loose seeds are first rolled into pellets of earth which carry them through the leaves to penetrate the new soil underneath.

During the first year the growth of saksaul is very slow. Most of its growing power is going into its roots to give it purchase in the poor soil but after that it shoots ahead. Leontiyev claims not only is this method 50 times more productive than hand sowing, but it also enables the job to be done at the only time when the weather is favorable and that makes the difference between success and failure. In addition, it is said to repay the initial outlay within seven years, since the prolific saksaul produces not only green fodder for cattle but also firewood which is in many ways superior to the brown coal of the region.

But these are trifling gains compared with the long-term prospects of security for the cotton growers and, perhaps, the cultivation of vast stands of valuable timber when the saksaul can be thinned out and replaced by higher grades of trees. Even more attractive perhaps is the thought that in this struggling world, where so much strife and hardship is the direct result of insecurity and hunger, one more small patch of the earth's surface has been established in sound cultivation and one more group of people now has a vested interest in peace and stability.

New Hampshire Taxes the Ax

(From page 15)

Adams saw an opportunity to place the state on record for conservation and good forestry. His great contribution was a clause which grants an abatement of 30 percent of the tax if cutting practices comply with standards recommended by the Forest Advisory Boards and adopted by the Forestry Commission. The tax is levied, collected and abated by the local assessors and collectors.

The administration of the law has been reasonably good. Of course, there have been disagreements as to the valuation both of timber cut and of the land, which is still taxed annually. Such disagreements have always existed.

There is a fairly close range for land values, \$2 to \$6 instead of the

\$2 to \$50 spread for land and timber under the old law. A partly mature forest at present might easily be priced at \$100 or more an acre. The severance tax is based upon measured volumes and at going prices for current sales, not difficult to ascertain.

Alert forest owners are reacting favorably. At least 27 percent of the 1951 cut received abatement for satisfactory cutting practices. New owners interested in forestry are acquiring land for the long pull. A larger number of consulting foresters are finding employment. The fact that trees may be harvested at short intervals and in a fashion to keep the forest in a productive condition, without the danger of an excessive

annual tax, is gaining recognition. Progressive paper and lumber companies are encouraging landowners to comply with the conservation law. Leadership is not wanting in the forest.

The experiment still has its difficulties though not insurmountable ones. The 234 towns and cities possessed varying amounts of growing wood and timber in 1949. The values on the tax books for those volumes varied even more, and the tax rates ranged from \$1 to \$6 on a hundred. No state-wide review and adjustment of these variables, to achieve greater uniformity, was possible. The price for the passage of the new law was a state guarantee to each and every town of a minimum annual revenue based on its average timber value between 1944-48 and its current tax rate. If a town collected more revenue from the severance tax than the guaranteed amount, well and good. If it received less the state paid the difference. There were a few minor adjustments but that was the over-all plan.

The tax on the cut from the 4,700,000 acres of commercial forest last year was \$358,000, whereas the total guaranteed was \$463,000. As it is "heads the town wins, tails the state loses" it cost the latter more

than the apparent difference, actually \$170,000, to fulfill its obligation. Sixty-seven towns together collected \$72,000 more than they required.

An analysis of the figures leads one to believe that the present severance tax will yield annually an average of eight cents per acre. Nearly 100 towns can carry themselves on that basis.

As good forestry practice becomes the rule a larger yield will be available for cutting and greater tax revenue result. Twenty cents an acre seems to be a reasonable expectation for the future. Only 30 towns need more than 20 cents per acre and they will remain a problem until some adjustment is made. The legislature is even now giving thought to possible amendments.

The law has been in effect too short a time to establish its true worth. It has the characteristics of many conservation subsidies which have been of tremendous educational value. The turpentine farmers were taught to raise their diameter limit by a direct federal subsidy. Farmers have learned to use lime and fertilizer. The situation in New Hampshire is somewhat similar; the state, in this case, subsidizes the towns so they may change their method of taxation for future benefits.

HIGHLIGHTS OF THE 1952 REPORT BY U. S. FOREST SERVICE CHIEF

Record Receipts—Revenue from the sale of timber, grazing permits, land use permits and water power rights reached an all-time high of \$71,401,511. Twenty-five percent of this total was returned to the states for distribution to the counties containing national forests for defraying road and school expenses.

Beetle Battles—The spruce bark beetle epidemic in Colorado was brought under control after several years of action, but an equally serious epidemic of the same beetle developed in the Northwest, centering in the western Montana and northern Idaho area of Region One. Depredations of forest insects and diseases and the means to bring them under control continues to be one of the biggest problems facing the Forest Service.

Grazing Permits—A total of 19,708 livestock operators were issued permits for grazing 1,088,215 cattle and 3,012,712 sheep. An additional 47,283 cattle, 5353 sheep and 1210 swine grazed free.

Recreation Visitors—Use of national forests also reached an all-time high of 30,000,000 visits. This seriously overtaxed the available camping and picnicking facilities in many of the forests, according to the report.

State Cooperation—The states, with cooperation of the U. S. Forest Service, distributed 292,000,000 trees to private landowners at nominal cost for planting farm woodlands, shelterbelts and windbreaks. In addition 49,640 acres of national forest land was planted.

Research Report—Continued research was directed toward the development of more efficient management, protection and utilization of the renewable resources of timber, range and water at Forest Service experiment stations and the Forest Products Laboratory at Madison, Wisconsin.

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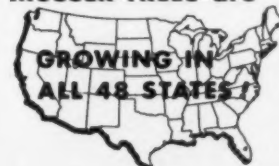
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3. Drown your campfire, then stir and drown again.
4. Ask about the law before burning grass, brush, fence rows, or trash.

History of Forest Tools

(From page 19)

valuable. It took time and special skill to shape them, and many large stones were spoiled for every one which split in just the way the maker wanted.

In many places, such as the South Seas, axheads have been used for money—a canoe being worth from 10 to 50 axheads, depending on its size and workmanship.

Bronze—which is a mixture of copper and tin—was probably first made about 5000 to 6000 years ago, and it gave men their first metal axes. Men of the Bronze Age, as it is known, cast bronze axheads and adzes in molds, and sharpened them later. Since metal was scarce, when one tool showed wear, it was melted and recast.

The Iron Age, when iron first began to be used in quantity, started about 3000 years ago, although iron was known long before this. Iron was harder to work than any material yet used, but it made far the best cutting tools.

In design, axes and hatchets, which

are small axes made to be used with one hand, and adzes, which are axes with their blades set to work like hoes—haven't really changed much since the Stone Age. Today we have fine, long-wearing steel blades which will accomplish in a few strokes what the flint ax did in an hour—but the shape of the ax and the length of its handle have changed only slightly.

While axes have always been important, they were never more vital to any person than they were to the Colonists who landed on the wild North American continent over 300 years ago. Much of the land was covered with dense forests, and a man's ax was fully as important as his gun.

The first native iron was smelted near Boston in 1650, and from it were made axes, saws, hammers, etc. However the ore was of a poor grade, and it wasn't until about 1750 that the first steel was produced in America. But even at this time axes were crudely made, usually being hammered out by the local blacksmiths. They were sold unsharpened, and a really first-class tool was rare.

The Collins Company in Connecticut, which was started sometime before 1831, was one of the first to make axes in quantity, while the Mann Edge Tool Company of Pennsylvania began making axes in 1835. However, there is a story that one member of the Mann family made a dozen axes in his blacksmith shop around 1790 and sold them to settlers as he traveled over the old Carlisle Indian Trail. Today most of our axes are still made in Connecticut and Pennsylvania. Very likely the ax with which Abraham Lincoln split rails came from one of these pioneer toolmakers. So important has the ax been in American history that one of the chief figures of our western folklore was Paul Bunyon, a fabulous woodsman wielding a mighty double bit—or two-edged—ax.

In the 1860's a procession of poles carrying the first iron telegraph wire spanned the continent from the Atlantic to the Pacific. A few years later, in 1869, the last of millions of wooden ties were laid, and the first transcontinental railroad was completed—thanks to the efforts of an army of men with axes and adzes.



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Letters to the Editor

(From page 2)

estry. He starts by giving a summary of Norwegian history and industry, which gives the impression of Norway being an undeveloped country. He says, "Norway was not independent until 1905. For centuries the country was vassal to great European powers, and as the 'colony' there was no development of its industry. For more than a thousand year Norwegian life has centered in quaint sod-roofed cabins." Further he relates quite fantastically of a poor mountainous highland without coal and minerals, and with the forests as the only natural resource. Also we are believed "to have been turned to specialized industry in order to maintain a high standard of living."

Mr. Editor, permit me to give the following information in answering the above mentioned article:

Thousand years ago Norwegians crossed the Atlantic Ocean in their "Viking Ships" and got as far as Greenland and to the American continent. Norway was united to its southern neighbour-country Denmark, from about 1400 until 1800, then for about 100 years to its eastern neighbour-country Sweden, and in neither case Norway was a "colony," nor a vassal to the great European powers. During the union to Sweden, Norway started the founding of its great merchant fleet, today No. 3 in the world, and in comparison to our population, the greatest in the world. Before World War II, Norway had the most modern tank-fleet of the world, which took great part in winning the battle of the Atlantic Ocean. Norway started very early in building out the electric power. Per person, Norway is having the highest percent with 5700 kwh per year. Secondly, comes U.S. with 3200 kwh per year per person.

The modern whale fleet is created by Norwegians, and about 50% of the whale oil produced in the world today is coming from the Norwegian whaling fleet in spite of heavy losses during the war. As an export nation of fish, Norway is No. 1. The synthetic nitrogen industry is founded in Norway more than 50 years ago. Some of the first silk-cellulose plants were founded in Norway and play an important part in the world's production.

Mr. Dennis Strong refers to parts of Norwegian forestry law and forestry administration and he goes through the Norwegian forestry administration, and has been quite good in getting a number of facts. However, a great many misunderstandings have arisen, and because of this the author has come to some very wrong conclusions, indeed. Among other things, he states that the Norwegian nation wishes "compulsory management" of all privately-owned forests, and that the Ministry of Agriculture controls the individual forest owner's dispositions. I may inform you that the different international forestry congresses which have been held in the years after World War II, the Norwegian representatives have very strongly opposed "recommendations for compulsory management." The Norwegian forestry legislation is only entitled to interfere when the owner is supposed to make damage on the forest. It is in this case only

that the "inspector" can forbid the felling of trees that have not been marked out by him.

Further, it is not right that smaller forest owners are without interest in getting "better forests." The Norwegian Forestry Society makes—among other things—working plans for small farm forests, and they are enormously popular. It is also absolutely due to wrong information that the smaller foresters and the official "forest officers" do not cooperate. The opposite is the case.

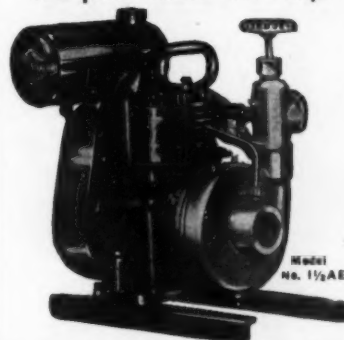
Norwegian forestry is not even so little mechanised as Mr. Strong seems to believe. In the 30's, the truck was widely put into use in Norwegian forests. Roads through forests were built on large scales, and this has continued since, even during the war, when trucks were driven by woodcoal or by wood only. Since the last war, the ordinary agricultural tractor is supplied with belts and used in the forests to a great extent. Norwegian-built cableways are being used, and nearly all over, the Norwegian-made powersaw is used.

I do not know whether Mr. Strong has been to Norway. If so, he must either not have had the right contacts or been in the country for a too short time. We would, however, be very pleased to have Mr. Strong, or anyone interested in forestry from your country, to come and make studies in our way of doing forestry. Our Society, The Norwegian Forestry Society, shall be very glad to be of any assistance.

Nils N. Ihlen
Managing Director
Norwegian Forestry Society
Oslo, Norway

(Author Strong is a Yale graduate now doing economic research in Norway.—Ed.)

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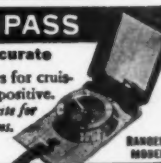
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Bequests to THE AMERICAN FORESTRY ASSOCIATION

There are many members and friends of the Association who find it impractical to contribute to its educational activities during their lifetime. Gifts in the form of a bequest are welcomed. Officers of the Association will gladly consult at any time with those who wish to know more about designating gifts for educational work in forest conservation.

Following is a paragraph suitable for incorporation in wills:

"I hereby give, devise and bequeath _____ to The American Forestry Association, Washington, D. C., a non-profit District of Columbia corporation, or its successor, or successors, for the purpose of promoting the corporate activities of said Association."

AMONG OUR AUTHORS



Mr. Rathbun

Twice in the past ten years he has served in the state legislature. He also played a prominent role in passage of his state's timber yield tax, the history of which he recounts in this issue.

Creighton Peet (*History of Forest Tools—The Ax and the Adz*) writes from a New York City headquarters. As a top-flight freelance he specializes in children's books and articles with an historical background.



Mr. Priaulx

journalism and political science in college. he turned to news writing, publishing and public relations work in 1922 and has been active in the field since.

Lawrance W. Rathbun (*New Hampshire Taxes The Ax*) is a graduate of the Yale School of Forestry (1927) and has lived in New Hampshire since that time. In 1935 he succeeded Philip W. Ayres as forester for the Society for the Protection of New Hampshire Forests.

Arthur W. Priaulx (*Nature on the Rampage*) is a veteran Pacific Northwest conservation writer and one of the most prolific in that part of the country. His byline has appeared frequently in AMERICAN FORESTS as well as other nationally-circulated magazines.

After majoring in

Nard Jones (*Man's Great Search*) is the author of 11 books and is a frequent contributor to leading national magazines. A former associate editor of PULP AND PAPER MAGAZINE, he is perhaps as well informed on conservation issues as any writer on the American scene.



Mr. Sawyer

has been judge of a county court, is a member and former president of the Oregon Reclamation Congress, a director of the National Reclamation Association, and currently is a member of The American Forestry Association's Board of Directors.

Gib Crockett, whose cartoon so forcefully distills John Q. Public's fed-up attitude toward Congressional lethargy in investigating and plugging loopholes in the mining laws, is a Washington, D. C., cartoonist of top rank. His drawings are syndicated in leading papers all over the nation.

Cleveland van Dresser (*Abuses Under the Mining Laws*) is a nationally known author with more than 20 years' experience as a writer of conservation and related topics. This month's article in AMERICAN FORESTS concludes a six-story series by van Dresser.


THE FUTURE BOOK

THEY STILL COVET OUR LANDS—in which Arthur H. Carhart examines a new attempt by western stockmen to ramrod legislation through Congress inimical to the best interests of the American people.

A PROGRAM FOR COUNTRY BANKS—a story by A. G. Brown, director of the Agricultural Commission of the American Bankers Association, describing efforts by bankers all over the nation to stimulate interest in sound forestry.

DON'T SELL NEW ENGLAND SHORT—a Nard Jones interview with Laurence F. Whittemore, president of the Brown Company of Berlin, New Hampshire, pointing up the industrial comeback being made in the Northeast.

MEET THE CHIEF—a profile of Richard E. McArdle, Chief Forester of the U. S. Forest Service, explaining the significance of his staying on the job under the new administration and why this should have a stabilizing influence on the whole forestry field.



What's NEWS across the nation

BIGGEST HIT AT THE ANNUAL "PAPER WEEK" CONVENTION of the American Paper and Pulp Association in New York February 16-19 was a Community Relations exhibit showing how the industry is helping to cement neighborly relations in communities it serves across the nation (see "The People in Pulp and Paper," January 1953, AMERICAN FORESTS). Directed by Don M. Rochester, the exhibit served to set the theme for the annual meeting attended by over 1000 people. It was further highlighted in an address by Dwight J. Thompson of the Champion Paper and Fibre Company, who discussed "Community Relations in Action." For the second consecutive year "good forestry" was a key subject at both the APPA and American Pulpwood Association meetings at the Waldorf Astoria Hotel.

THE WALT DISNEY STUDIOS IN HOLLYWOOD WILL USE AN ARTICLE authored by Arthur W. Priaulx, "Hunters Paradise Imperiled," as background material for a forthcoming vandal-bug-movie. Mr. Priaulx's article appeared in the November 1952 issue of American Forests Magazine. Mr. Disney is an active member of The American Forestry Association and a former honorary vice president.

THE AREA OF DISAGREEMENT AMONG VARIOUS SEGMENTS OF FORESTRY as regards methods of procedure in carrying out the proposed Timber Resources Review of the U.S. Forest Service proved narrower than had been anticipated at a final general conference on January 28th called by the Forest Service. All groups present—including The American Forestry Association, Izaak Walton League, National Wildlife Federation, CIO, AF of L, American Pulpwood Association, American Paper and Pulp Association, and the National Lumber Manufacturers Association—said they were in favor of all or part of the proposed study. Groups giving only partial endorsement—namely the industry groups actively engaged in the growing of trees—expressed the fear that the magnitude of the task is such that a poor report might result.

EDWARD P. STAMM, LOGGING MANAGER OF THE CROWN-ZELLERBACK CORPORATION and a director of The American Forestry Association summed up industry's general attitude when he said, "There is no disagreement here on the importance of the Review. But we don't want to see a half-baked job. We want a good job. We want to establish a factual, incontestible basis for gathering accurate facts. That is why it is vital that we start with the right hypothesis."

DON P. JOHNSTON, PRESIDENT OF THE AMERICAN FORESTRY ASSOCIATION, said that all groups are apparently in general agreement on the importance of the study and suggested that if there is any doubt as to whether a good study can be made with funds and personnel now available, that steps should be taken to provide more funds. Johnston also said that the public doesn't want a "quickie" report. It wants the facts.

WITH THE HEARINGS ON THE STUDY NOW COMPLETED, RICHARD E. McARDLE, chief of the Forest Service, said that the proposal would be taken under advisement and that groups represented would be kept advised on decisions made. The suggestion was also made by Mr. McArdle that upon completion of the Review, the forestry groups present would be invited to another meeting to help interpret the results.

(over)

WHAT'S NEWS ACROSS THE NATION--(Continued)

GREATER COOPERATION BY GOVERNMENT AGENCIES WITH INDUSTRY'S national Tree Farm program will be urged in the months ahead. First nudge in this direction was Interior Secretary McKay's talk February 12 at the reception of the American Planning and Civic Association and the National Conference of State Parks when McKay referred to the great gains made by the Tree Farm program in his native northwest and the south. In urging greater cooperation in conservation affairs, McKay referred to a natural resources committee he established while governor of Oregon which got representatives of various groups on a "first-name basis."

WITH THE SEARS-ROEBUCK FOUNDATION underwriting the annual conservation awards of The American Forestry Association for a three-year period, Robert N. Hoskins, chairman of the Awards Committee, has announced that the scope of the committee's work will be expanded. At a conference with AFA staff members last month, Mr. Hoskins disclosed plans for a series of news and picture releases on the awards work, a brochure on the history and function of the program, and plans to contact key-communications leaders in the nation pointing to more active participation by the press, radio and television in awards to be made at a Fourth American Forest Congress in Washington, D. C. in October.

HOSKINS ALSO ANNOUNCED THAT HIS NEW COMMITTEE will be called together at an early date in Washington. Named for three-year terms to the committee are Dr. M. D. Mobley, executive secretary of The American Vocational Association, and Mr. Hoskins, industrial forester for the Seaboard Air Line Railroad. Appointed for terms of two years are Milton M. Bryan, chief, woodland management section, U.S. Forest Service, and Dr. Paul Sanders, editor of the Southern Planter. Named for one-year terms are Congressman Watkins M. Abbott, of Washington, D. C., and Charles Collingwood, of the Columbia Broadcasting System, New York City.

APPOINTMENT OF A 12-MAN FORESTRY ADVISORY COMMITTEE to augment the work of its Committee on Forest Conservation has been announced by the National Lumber Manufacturers Association. Members are Howard Bennett, forester of the Appalachian Hardwood Manufacturers, Inc., Cincinnati, Ohio; R. E. Broderick, secretary, Northeastern Lumber Manufacturers Association, New York City; Emanuel Fritz, consultant to the California Redwood Association, San Francisco; William B. Greeley, vice president, West Coast Lumbermen's Association and chairman of the board of American Forest Products Industries; W. D. Hagenstein, forest engineer of the Industrial Forestry Association, Portland, Oregon; William C. Hammerle, forester of the Southern Pine Association, New Orleans, Louisiana; Ernest L. Kolbe, forester, Western Pine Association; H. F. Lathrop, of Lightsey Brothers, Miley, South Carolina; Stuart Moir, Western Forestry and Conservation Association; George Stanley, Kirby Lumber Company, Houston, Texas; and O. T. Swan, Northern Hemlock and Hardwood Manufacturers Association, Oshkosh, Wisconsin.

A NEW GILA WILDERNESS AREA IN THE GILA NATIONAL FOREST of southwestern New Mexico has been established by the Department of Agriculture. The new wilderness area embraces 419,000 acres or about 74 percent of the former Gila Wilderness area established in 1933. The Department's decision was based on a public hearing at Silver City, New Mexico last August. Another 148,000 acres which will be studied further includes lands which have been invaded by automobile roads and some 4500 acres of privately-owned land over which the Department has no jurisdiction. The Forest Service, together with local groups, will continue to study this area to determine whether it should remain wilderness or opened up for other uses, the Agriculture Department said.

DUKE UNIVERSITY HAS JUST LAUNCHED A NEW NATION-WIDE forestry training program in cooperation with some 22 colleges and universities, according to Duke President Hollis Edens. Students in the program will follow a three-year coordinated study program in the basic arts and sciences at the participating colleges. At the end of this period, students who show exceptional promise for professional development will transfer to the Duke School of Forestry for two years of specialized training. To date, selected colleges in the following states have entered the program: Florida, Mississippi, South Carolina, Virginia, Pennsylvania, Ohio, Kentucky, Vermont, Oregon, and Nebraska.

RECOMMENDED READING

Gone Fishin', by Charles Elliott. Published by the Stackpole Company, Harrisburg, Pennsylvania. Decorations by Jack Hogg. 290 pages. Price \$5.

When, a short time back, Georgia's talented and versatile Charles Elliott traded the directorship of the State Game and Fish Commission for a typewriter and an urge to write, even his most ardent well-wishers could not foresee the quality of success he has achieved in this fascinating book. A long and distinguished line of outdoorsmen have gone fishin' via printer's ink before him, of course, among them more astute technicians, more searching philosophers, more practical first-aiders to novice anglers. But in this reviewer's opinion, none has achieved more pure reading enjoyment than this compilation of Elliott fact and fancy.

One reason is that when the author goes fishin' he does not concentrate on fish. This may or may not be faint tribute to the value of the book as an angler's guide to more fruitful excursions along pools or rapids—if success be measured in the number and size of fish caught. But, in Elliott's own words, "Each fisherman who ventures out has his own conception of inspired vagaries of the day. . . ." And it is on this vote his sympathetic mind and gifted pen have here dealt in solitude as well as lures, in fellowship as well as pole and line ingenuity, in matters spiritual as well as matters material. Whether it be his cherished Okefenokee Swamp in Georgia or Cedar River in upper New York or Diamond Shoal off of historic Cape Hattaras or his own backyard, fisherman Charles Elliott is constantly looking "for the sunshine on the water, the bond of fellowship between men." And this, we hold, is a principle such of the world as still retains a sense of balance could profitably follow in all lines of endeavor.

Another reason this book will find its way into thousands of outdoor libraries is that Elliott is a writer before he is an angler. He knows how to plot his course, how to draw from

his own wellspring of experience in just the right mixture with the experience and judgment of others. And he knows what to do with the material when it is in front of him, for Charles Elliott in *Gone Fishin'* is a master of narrative, a writer who has achieved the rare ability of informing and entertaining in the same sentence. To anyone who has gone fishin' or is planning to go fishin' this delightful book will prove a worthy and unfailing companion.

The Healing Woods, by Martha Reben. Published by Thomas Y. Crowell Co., New York. 250 pages. Price \$3.

This is a refreshing and lyrical story of a city-bred woman whose search for health in the wilderness opened up a whole new way of life. More than an account of her miraculous recovery, this is a story brimming with nature lore as seen through the inexperienced eyes of one to whom these wonders are a new and fresh discovery.

Land for Tomorrow, by L. Dudley Stamp. Published by Indiana University Press, Bloomington, Indiana. 219 pages, illus. Price \$4.

This is a new frame of reference for land use, written by the noted English geographer, Dr. L. Dudley Stamp. Here is conclusive evidence that the most important underdeveloped lands are not in the tropics and uninhabited latitudes, as we might expect; the hope for land development lies in the middle latitudes, in the United States, the Soviet Union, Canada, Australia, and the Argentine—countries already powerful and populated.

When ordering books—reviewed on this page or listed in The Bookshelf—remember that your AFA membership entitles you to a ten percent discount. Order through the Book Department, The American Forestry Association, 919 17th Street N.W., Washington 6, D. C.

State Forestry Saga Will Be Published

Sometime this fall, what promises to be one of the greatest forestry stories ever told—the full-bodied, revealing and absorbingly human saga of state forestry in America—will be published by the Association of State



Mr. Kaylor

Foresters. Two years in preparation, this document of nearly a quarter million words will for the first time bring to the people of the country the full and fascinating history of grass-roots forestry—forestry at the community level.

This work is for the most part the product of combined efforts of the individual state foresters and their staffs, along with numerous veteran state officials who have played vitally important roles in the half century history of the state forestry movement. But the stimulus behind it was the Association's History Committee, headed by Joseph F. Kaylor, Maryland's director of Forests and Parks.

As set forth by this committee, the forthcoming book is designed to "tell the story of the development of each state forestry department in the United States and to assemble information that with increasing frequency is being requested by the public."

The book is being edited by Erle Kauffman, formerly editor of *AMERICAN FORESTS*, and now editor of *THE CONSERVATION YEARBOOK*.

Recognizing the importance of this book, not only because of historic interest, but because of trends which are placing greater responsibility for the nation's forest future with the individual states, *AMERICAN FORESTS* has asked permission to present a condensed version of the story of one state—Louisiana. Readers are urged to watch for this explosive and absorbing story in the April issue of your magazine.

Feature Photo of the Month

Photos used on this page will be of unusual rather than esthetic or descriptive qualities and subject matter will be restricted to scenes, events, objects or persons related to the use, enjoyment or unique aspects of our renewable natural resources. For each picture selected AMERICAN FORESTS will pay \$10.



The weird shapes into which trees sometimes grow make them suggestive of the strange denizens of bygone ages—or of a nightmare. These two specimens, for example, look as if they might be locked in mortal combat. Photo was submitted by Ray Atkeson.

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